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Some Rubber-Planting Fiascos In Tropical America

*By J. Fred Rippy**

Intermittently for more than half a century citizens of the United States and their government have interested themselves in the cultivation of rubber in the Western Hemisphere. Their efforts have cost investors and taxpayers many million dollars—probably well above a hundred—and have produced almost no rubber. Attempts to grow rubber in the American tropics began in the 1890's with a speculation spree that lasted more than a decade. They were resumed in the 1920's, after an interval of recovery from losses and disappointments, in the hope of finding a means of escape from the exactions of successful rubber planters of the Middle East. They entered a new phase in the 1940's amid the consternation caused by the Nazi invasion of Western Europe and the Japanese seizure of the Oriental rubber regions.

I.

The first effort started with the wrong trees—*Castillas,* sometimes called *Castilloas,* instead of *Heveas*—and with the wrong emphasis and with too much haste. Excited by consular reports made under the direction of the State Department, reports that predicted a rubber famine and seemed to suggest large and comparatively easy returns from cultivated rubber, investors soon became the prey of speculators who bought or leased lands in southern Mexico and Central America and expended more energy in the "fleecing of saps" than in the cultivation of saplings. Land companies, rubber-planting companies, and rubber-tapping com-

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panies sprang up by the score in half the states of the North American union. Prominent men whose intelligence and honesty were likely to be taken for granted were listed as members of administrative staffs and boards of directors. Extravagant advertisements appeared in newspapers. Glowing prospectuses were distributed on farms and street corners. Salesmen of securities plied their trade. "Oldtimers" of the tropics, in phrases that seemed to exude caution, assured anticipated victims that they would make no mistake if they ventured their savings in rubber planting. Sir Thomas Lipton, well known tea millionaire, was quoted in praise of tropical agriculture. Collis P. Huntington, Western railway magnate, was represented as advising that rubber held out better promise of enrichment than railroads. William Allen White, who had recently leaped to fame as a Kansas journalist, was quoted as expressing amazement at the speed with which rubber-tired buggies and automobiles were swarming over the West. Californians were told that Joaquin Miller, popular "poet of the Sierras," was spending his vacations on Mexican rubber *fincas*. The hard life of the "hot lands" was covered by a thick cloak of romanticism and glamour. The tropics were portrayed as a delightful region where Harvard men read Homer after the day's work was done.

Dividends of from five to fifteen percent were promised immediately from "side crops," and much higher returns after the rubber trees began to pour forth their liquid gold. Big annual yields were predicted, as high as twenty pounds from each tree, within six or seven years. Rubber securities were offered on terms within the reach of all. They could be bought on installment for as low as two dollars a month. Attractive bonuses and discounts were included, along with insurance policies providing for cancellation of the rubber debts of the deceased and transmission of their holdings to designated heirs. Little businessmen, farmers, clerks, policemen, firemen, teachers, preachers, all the world's hard driven, were offered a chance to escape from their bondage of toil and anxiety.

Enticing nomenclature was employed. Californians with a veneer of Spanish culture, Scandinavians residing in Minneapolis and St. Paul, men of many races and languages in Chicago and

New York, Anglo-Saxons from Oregon and Texas to Maine and Massachusetts were soon pronouncing and mispronouncing names. Chiapas, Tehuantepec,, Socunusco, Campeche, Oaxaca, Aztec, Montezuma, Chamelicón, Escuintla, Matagalpa, San Pedro Sula, Zacualpa, Dos Ríos, Rúbio, San Juan Bautista, Tierra Blanca, Santa Lucrecia, Lolita, Doña María, Buenaventura, Colombia, Esmeralda, Esperanza—these and many more became familiar to thousands who invested their savings or emerged triumphant from repeated encounters with sharp and aggressive salesmen. A few of the promoters preferred, however, to give Anglo-Saxon names to their plantations, such as Yale, Iowa, and Tennessee, or Philadelphia, Chicago, Manhattan and Daytonia.

Full confidence and high optimism were necessary in order to induce little investors to keep up their installment payments. They were told that they could well afford to risk a few dollars more even without immediate dividends in order to secure in return a comfortable income for the rest of their lives after the rubber trees reached maturity. Presumably reputable individuals, sent out frequently to inspect the plantations, usually returned with glowing reports of progress. Effective use was made of photography: luxurious tropical vegetation; rubber trees in the foreground (probably of the wild species); barefoot *peones* under big *sombreros* engaged in clearing or tapping while smiling plantation managers looked on with approval.

Installments continued to stream in to corporation offices and new companies continued to be organized in spite of warnings from the State Department and the Department of Agriculture, and in spite of bankruptcy in some instances and revelations of fraud in others. The financial panic which began late in 1907 caused a number of liquidations and reorganizations, and still the rubber enthusiasm held up. Thousands of seedlings were planted as late as 1910. In fact, the rubber-plantation boom, as already intimated, continued for more than ten years.

The aggregate of stocks, bonds, and "rubber-harvest" certificates purchased by the people of the United States during these years has not been precisely determined. The authorized capitalization of the more than a hundred enterprises organized for the purpose of speeding rubber's return to the New World where

it originated probably amounted to well in excess of $100 million; but the promoters and salesmen did not succeed in marketing all of their securities before the final collapse. First and last, probably forty or fifty million *Castillas* and a sprinkling of *Heveas,* sometimes called *Paras,* were planted at the cost of fully as many million dollars. Lands acquired in one way or another in southern Mexico and Central America reached a total of several million acres, but only a few hundred thousand were actually cleared and planted in rubber before the failure of the effort was convincingly revealed. Perhaps a larger area was devoted to other crops and to grazing. Jungle, some of it exploited for various forest products, remained on the rest.

A very violent revolution in Mexico, accompanied by intense "Yankeephobia," expelled even the most determined and honest planters and compelled their workers to join insurgent armies. Milder political disorders and dismal failure to produce rubber at competitive prices finally terminated the effort in Central America. By no means all of the enterprises were fraudulent or even purely speculative. Perhaps even the majority were conscientious and industrious. Some employed genuine rubber experts and others trained them. From the practical standpoint, however, the character of owners and managers and the capacity of scientists were of little moment. The effort was doomed from the outset by the selection of *Castillas* instead of *Heveas.* But investors, managers, and scientists made at least one very significant discovery. They discovered that *Castillas* were scanty producers.[1] Lush jungle soon spread over the plantations and choked the rubber trees, but millions of them were still in fairly good health a decade and a half later when attempts were made to renew the plantation effort and when exploring parties from the United States inspected the region.

II.

These parties had been sent by Herbert Hoover, then secretary of commerce, who in retrospect seems to have been unduly

[1] For a fuller account of this early episode, see J. Fred Rippy, *Latin America and the Industrial Age* (New York, 1947), pp. 166-176, 271-272.

alarmed by attempts of foreign producers and governments to restrict the output and export of a number of raw materials which were required by American industries and ultimate consumers. Still apparently convinced of the soundness of his views and the effectiveness of his measures, he referred to the problem in his *Memoirs,* recalling that the Department of Commerce had obtained an appropriation of half a million dollars in 1923 "to investigate these activities and to conduct a battle against them." "The worst example," he declared, "was the British rubber control originated by the energetic Secretary of State for the Colonies, Winston Churchill. It was organized in 1922 to reduce rubber production and steadily advance the price. The prices were forced up from 13 cents per pound to $1.21 a pound by 1925." Hoover and his associates countered by organizing "a nation-wide campaign to reduce imports by conservation and by substitution of reclaimed rubber," by urging the Dutch government to "maintain reasonable prices" and stay "out of the combination," and by encouraging "American manufacturers to plant rubber in non-British territory." The price of rubber fell to 59 cents a pound by March, 1946, and to 40 cents per pound by the following June, and Hoover claimed credit for the reduction.[2]

Meantime, Hoover's exploration teams and the agents of some of the big rubber manufacturers had been investigating rubber plantations and prospects for rubber cultivation all over the globe. As it turned out, only Henry Ford centered his plantation efforts in Latin America. Other manufacturers directed their attention to Asia and Africa. But failure to give more stress to the Western Hemisphere was not the fault of Hoover or his staff.

Julius Klein, director of the Bureau of Foreign and Domestic Commerce, was not lacking in enthusiasm when he submitted the report on the Amazon Valley. "The population of this region is estimated at 1,500,000," he observed. "Under present con-

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[2] *The Memoirs of Herbert Hoover: The Cabinet and the Presidency,* 1921-1933 (New York, 1952), pp. 81-83. Charles R. Whittlesey, in his *Government Control of Crude Rubber* (Princeton, 1931), discusses the subject at length. Sir James Stevenson was chairman of the committee which formulated the program, and it became known as the Stevenson Plan.

ditions . . . a total of 30,000 laborers might be procurable . . . for rubber-plantation projects—a force sufficient to plant and care for an area of at least 150,000 acres." Regarding the character of the workers, Klein declared: "As a rule the laborer of the Amazon is of good physique, inured to exposure, and under proper incentive capable of long-continued effort. Man for man he could probably be classified as superior to the Indian and the Javanese labor[er] used on the rubber plantations of the Orient and at least equal in efficiency to Chinese labor.[3] Klein's letter submitting the findings of the team which explored northern tropical America was rather persuasive: "On account of its near-by location and the common wish for increasing prosperity throughout Latin America, many Americans would prefer to see the rubber-plantation development in tropical America rather than in other parts of the world. This report will show that conditions are favorable to rubber culture in more than six million acres in northern tropical America." Labor appeared to be somewhat scarce, but workers could be shifted from some of the Caribbean islands or imported from the Orient. The world's need for rubber was increasing at a rapid rate. "It would obviously be to the advantage of interested American capital and to the United States as a nation to have the necessary new plantations as near to our shores as feasible. . . ."[4]

H. N. Whitford, the Department of Commerce's administrative head of the crude-rubber survey, was perhaps a little less confident and convincing early in 1926 when he presented the problem to the House Committee on Interstate and Foreign Commerce: "In tropical America, except Haiti, labor is not abundant . . . Where organized agricultural development already is in existence, as is the case with the fruit companies . . . , it is believed the capital costs can be kept below the usual level of such costs for new areas in the Middle East." The fruit and other companies might be induced to "plant small units in strategic places and encourage peasant plantings around these units."

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[3] U. S. Department of Commerce, *Trade Promotion Series,* No. 23: "Rubber Production in the Amazon Valley," pp. vii-viii.

[4] *Ibid.,* No. 40: "Possibilities for Para Rubber Production in Northern Tropical America," pp. xi-xii.

The natives could gain experience "from working on the company's farms." The various governments in areas where such companies were not operating might be persuaded to permit the importation of Chinese labor. Fairly large rubber plantations probably could be established in the Amazon Basin without bringing in labor from the outside. If the governments of the lands farther north objected to importation of workers, the future of plantation rubber in Latin America might have to depend upon the small farmers who, while growing rubber, could also grow "good crops between the rubber trees." "I see no reason," Whitford concluded, "why it is not possible to encourage the nationals of the various . . . countries to plant rubber by the establishment of small demonstration plantations in each one of them." He therefore urged Congress to set up a fund to be used for this purpose in cooperation with the Latin-American governments. This might stimulate plantings in each republic, and the total acreage "might be large." Assistance by the United States would be in the form of advice, possibly in the way of furnishing seeds, or establishing nurseries. If big investors in this country wished to inaugurate large plantations in Latin America, "so much the better," but he had "found no capitalists willing to undertake this work."[5]

Harvey S. Firestone said that he had desired to plant rubber in Panama, Mexico, and Central America but had turned elsewhere because of adverse topography or the risk of revolutionary violence.[6] Richard O. Marsh, civil engineer and representative of the American Association for the Advancement of Science, declared: "I have talked to nearly every great financial concern in this country. They have all told me plainly in effect, 'Mr. Marsh, we will not invest hundreds of millions of dollars in a rubber development in any other part of Latin America except Panama, because we have no faith in the political security of such investments. We have seen a billion dollars of American money in Mexico . . . jeopardized by unstable government. . . .' "

[5] House Committee on Interstate and Foreign Commerce, 69 Cong., 1 Sess., *Hearings* (Jan., 1926): "Crude Rubber, Coffee, etc.," pp. 348-349, 354, 357.

[6] *Ibid.*, p. 256.

Marsh was an extreme enthusiast for Panama, where he alleged that well over two million acres adapted to rubber planting were available. He made a special plea for a rich valley in the Darien region, where he said he had discovered 1,600,000 acres perfectly suited to rubber culture. The supply of native labor would not be adequate, but workers could be shipped in from the Caribbean islands or from the Orient.[7]

Thus the problems of labor shortage, wages, and political instability had to be reckoned with. And there was also another: the problem of disease. The survey teams had noted that "leaf blight" was prevalent in some parts of South America and in the Island of Trinidad. But the mistake of planting *Castilla* trees would not be repeated. The experience of the early years of the century had not been forgotten, and subsequent tests had confirmed the impression that *Castillas* would yield much less latex than *Heveas*.[8]

III.

There were no productive rubber plantations of any significance in the Western Hemisphere at the beginning of World War II. Nearly all previous efforts had proved futile. Production and export of rubber were again under restriction in the Orient. Control under the Stevenson Plan, inaugurated on November 1, 1922, was lifted on November 1, 1928. The world economic depression of the 1930's had motivated another effort at restriction, however, an attempt more effective for a time than the one advocated by the Stevenson Committee and adopted by Churchill. An International Rubber Regulation Committee had been created in 1934. Its membership included a few representatives from industrial consumers, but prices had moved up from a low of a few cents a pound to more than twenty cents. In

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[7] *Ibid.*, pp. 372-373, *passim.*

[8] *Trade Promotion Series,* No. 23, as cited in Note 3 above, pp.-41-50 and 98-100; *ibid.*, No. 40, as cited in Note 4 above, pp. 7-9, 40-44, *passim.* The Amazon survey party's report seems slightly less optimistic than the statements by Klein and Whitford; the survey team which investigated northern tropical America apparently more hopeful than its superiors.

the words of Jesse H. Jones, president of the Reconstruction Finance Corporation and later secretary of commerce: "The International Committee, set up by the British and Dutch governments, had for years controlled the flow of raw rubber into the world markets."[9]

Alarmed by Nazi victories in Europe, Congress passed and the President approved two acts near the end of June, 1940. One authorized the RFC to procure, stockpile, and distribute rubber; the other appropriated half a million dollars to the Department of Agriculture to encourage the cultivation of plantation rubber in Latin America. RFC became the sole purchasing agent for all the crude rubber imported into the United States, selling some of it to manufacturers at cost, plus carrying charges. The Department of Agriculture became the exclusive agency for the stimulation of rubber planting in Latin America.[10]

After the Japanese attack of Pearl Harbor further steps were promptly taken under congressional and executive direction. RFC was given authority to finance synthetic rubber plants and a program of rubber cultivation in Haiti and to stimulate the collection of wild rubber in Latin America. The Department of Agriculture was voted appropriations for the cultivation of guayule rubber in California and elsewhere in the United States. RFC's rubber stockpile was still far too small at the time the nation entered the second World War, only some 630,000 long tons when annual consumption required nearly twice that quantity. The Rubber Development Company, which shortly became the Rubber Development Corporation, was organized to cope with the crisis, and a "Rubber Tsar" was appointed to expedite the process. Rubber Procurement Corporation would have been a better name for the new agency, since it merely financed and managed the collection of wild rubber in Latin America, paid the costs of the Haitian plantation project, and purchased rubber from Liberia, India, and Ceylon.

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[9] Jesse H. Jones, *Fifty Billion Dollars* (New York, 1951), p. 397.

[10] *Ibid.*, pp. 397-401; R. D. Rands and Loren G. Polhamus, *Progress Report on the Cooperative Hevea Rubber Development Program in Latin America* (U. S. Department of Agriculture, Circular No. 976, Washington, 1955), p. 1.

The main solutions of the problem were conservation, reclamation, and the production of synthetic rubber in plants which cost $700 million. But synthetic rubber without a mixture of from 25 to 30 per cent of natural rubber was not a satisfactory raw material, so that more natural rubber was needed than could be acquired from Latin America or elsewhere. The total output of India and Ceylon was no more than 115,000 tons per annum. Only 65,000 tons of crude and 20,000 tons of latex were obtained from the Firestone plantation in Liberia, and only 153,545 long tons, mostly wild rubber, from Latin America during the war period. The average price paid for Firestone's crude was 30 cents a pound, while twice that sum was paid for rubber purchased from Latin America. Not more than a third of the natural product so badly needed was to be had. The plantation fiascos of earlier years in Latin America were keenly felt by citizens of the United States.[11]

Moreover, two additional failures of planting efforts, and possibly three, were to be suffered during the fifteen years following 1940. The Haitian project, which involved an attempt to cultivate the *cryptostegia* vine and extract rubber from it was an utter failure, and so likewise was the *guayule* program. The first produced 5.5 tons at a cost of nearly $7 million, or $546 per pound; *guayule* rubber proved to be potentially cheaper, but its average actual cost was probably not less than $100 a pound!

Blaming Vice President Henry Wallace, member at the time of the Board of Economic Warfare, for the *cryptostegia* fiasco, Jessie Jones later wrote scornfully: "One plantation his bright young disciples originated in Haiti (against the advice of the qualified rubber authorities recruited by our organization) succeeded in spending nearly $7,000,000 to produce about enough rubber to fill a large truck." [12] Representative W. R. Poage of Texas, chairman of a subcommittee of the House Committee on Agriculture appointed to investigate both the *cryptostegia* and the *guayule* programs, reported on the former as follows on January 2, 1945: "The only extraction method known so far is to clip

[11] Jones, *op. cit.*, pp. 396-433.

[12] *Ibid.*, p. 420.

the end of each vine. When this is done, one or two drops of white juice flow out. This must be caught in a vessel." "It is easy to see," Poage continued, "that the tremendous amount of hand labor incident to the collection of the latex makes a most inefficient method of producing rubber." The Texas Congressman reported that the program had recently been discontinued because it had become "apparent that rubber could not be produced from cryptostegia in the quantities that had been expected." [13] Some 43,000 acres had been planted.

Pressure exerted by the California delegation in Congress and by the farm block was mainly responsible for the authorization of the *guayule* project early in 1942. The law provided for the planting of 75,000 acres, and 500,000 acres would have been permitted if President Roosevelt had not interposed his veto.

The Department of Agriculture's scientists were clearly in league with the farm group and at least one of the rubber manufacturers offered a helping hand. Elmer W. Brandes, Bureau of Plant Industry, declared in January, 1942: "I believe the whole program could be effectuated at practically no cost to the Government if the present price of rubber is maintained." [14] Rubber was then selling at 22.5 cents a pound. Assuming that the price would not fall below that figure, Loren G. Polhamus, staff member of the same bureau, estimated total net costs to the government of the 75,000-acre project at $11,290,000 through fiscal year 1948.[15] Brandes asserted that strains of *guayule* containing from 16 to 19 percent of rubber had been developed by the Intercontinental Rubber Company, which was eager to sell its assets and its scientific discoveries to the United States Government. William H. Mason, an official of the General Tire and Rubber Company, declared that the rubber content of this plant had been raised from 12 to 22 or 23 percent by the experiments of Intercontinental, and that he thought it might be increased to 30

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[13] *House Report,* 78 Cong., 2 Sess., No. 2098, Serial 10848, pp. 2 and 19.

[14] House Committee on Agriculture, 77 Cong., 2 Sess., *Hearings* (Jan. 1942): "Guayule Rubber," p. 24.

[15] *Ibid.,* p. 30.

percent.[16] Members of the House Committee on Agriculture, spurred by the analogy of the sugar program adopted in 1934, were eager for further profits for the farmers at the expense of taxpayers and consumers. Harold D. Cooley of North Carolina, R. H. Murray of Wisconsin, H. P. Fulmer of South Carolina, and Edward O'Neal of the American Farm Bureau Federation all agreed with the following view expressed by Congressman H. B. Coffee of Nebraska: "I think we can visualize this industry as something similar to the sugarbeet industry. We recognize . . . the necessity of having sugar produced on the continent because of a threatened shortage of supplies from the offshore areas," even though "sugar can be produced more cheaply in the tropical islands." [17] Congressman Fulmer even suggested a tariff as well as a subsidy. But both the B. F. Goodrich Company and the Goodyear Tire and Rubber Company, along with the Bureau of Plant Industry, opposed this scheme and advocated government operation of the program in the interest of industrial consumers, and this was the plan finaly adopted.[18]

Making no reference to his optimistic statements of early 1942 and claiming credit for himself and his associates to which they were not exclusively entitled, Brandes summarized the sad story of the expensive *guayule* failure in 1948: "The project during the war was an action program of rubber production and the acreage was considerable because the endeavor was to produce as much rubber as possible as an emergency measure. . . . There were roughly 32,500 acres of guayule planted. . . . When the action program . . . was liquidated Congress directed that the rubber be plowed up. . . . There were about 14,500 tons of rubber in the ground that could have been processed but it never was." The plants were not uprooted and processed because the expenditure required could be utilized at much greater advantage in procuring rubber from other sources. Scientists, who are the

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[16] *Ibid.*, p. 6, and Senate Committee on Military Affairs, 77 Cong., 1 Sess., *Hearings* (Dec., 1941): "Guayule," p. 3.

[17] House Committee on Agriculture, as cited in Note 14 above, p. 92. See also pp. 40, 77, and 113 for statements of approval.

[18] *Ibid.*, pp. 26, 98-99, *passim*.

miracle-men—and occasionally the medicine-men—of our time, are rather indifferent regarding expenditures of tax money and reluctant to discuss such matters. Brandes finally admitted, however, that "about 200 tons" of rubber were actually extracted at a cost of from $30 to $40 million. Remarking that he was not in charge of this program "at that time" and that it was under the Forest Service of the Department of Agriculture, he noted that the project had been transferred to his bureau as a research project and then added: "A good deal of work was done during that production program in the way of scientific research on the guayule plant to improve it by breeding. . . . The improved plants have been preserved. . . . Some strains of plants . . . were increased . . . from 10 percent of rubber up to 18 percent. I think some of our analyses show that individual plants contained as much as 22 percent rubber" Had Doctor Brandes forgotten the percentage of rubber content firmly assured early in 1942? Were he and Mason in error then, or had the plant deteriorated under scientific magic? [19]

Already Brandes and his associates had been presenting glowing accounts to congressional committees of their work in connection with the *Hevea* cooperative program in Latin America. As early as January, 1942, Brandes told the national lawmakers of the achievements that he and his associates had recorded: "The Government has a long-range program which contemplates the development of a very large plantation Para-rubber industry in the Western Hemisphere and the Government has been working on that . . . since July 1940, and has made a great deal of progress. By cooperative agreements with 13 Latin American countries, the Department of Agriculture has established scores of nurseries and planted some eight to ten million trees and has obtained bud wood of these superior strains or clones . . ., high-yielding and disease-resistant material, which comes in the form

[19] House Committee on Appropriations, 80 Cong., 2 Sess., *Hearings*: "Department of State Appropriation Bill for 1949," pp. 376-378. The *House Report* cited in Note 13 above, pp. 10, 18, 20-22, reckoned the cost at $37.7 to $56.7 million; and yet Congressman Poage recommended that the farmers take charge under a government guaranty of price support at a minimum of 28 cents per pound for *guayule* rubber.

of bud wood to be budded or grafted on these eight to twelve (sic) million trees, and that work has progressed very actively for 19 months, so that the prospects are that a good bit of the Hevea plantation rubber industry will be brought back to the New World. . . . The Goodyear Co. has planted rubber in Costa Rica, some in Panama; the Ford Motor Co. has planted on the Tapajoz River, which is one of the southern tributaries of the Amazon; the Firestone Rubber Co. has 70,000 acres of rubber planted in Liberia, half of which is now in tapping." This was clearly a propaganda diversion. The subject under consideration was California *guayule*. Twelve million trees were a lot more than eight or ten million; not a little carelessness with numbers was disclosed by Doctor Brandes. His geography was likewise a bit confused, for he deftly listed Liberia along with Central America and Brazil. But by this irrelevant palaver and a cheerful remark to the effect that *Heveas* required only a year or two in the nursery and five years on the plantation in order to pour forth their latex, he was painting a bright future for harassed Congressmen dreaming of an abundance of plantation rubber in the Western Hemisphere, safe from the spoilations of aggressors across the oceans.[20]

The appeal for an appropriation for fiscal year 1945 was made by Robert D. Rands, who stated that the latest figure on acreage actually planted was 9,298. If the average was 80 or 100 trees to the acre—and the number was probably no larger—the total would be much less than eight million and far less than the maximum of twelve million recited by Brandes in January, 1942. But big plans were said to be under way; more than 33,000 acres would soon be added, not in vast tracts but in little patches all over lowland tropical America. "Now we are emphasizing the small-farm type of rubber planting," said Rands, "because that will be thoroughly competitive with the Far (*sic*) East after the war." This small-farm talk was beginning to have a familiar ring; it had cloaked and would continue to conceal the large bounties handed out by the government of the United

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[20] House Committee on Agriculture, 77 Cong., 2 Sess., *Hearings* (Jan., 1942): "Guayule Rubber," p. 29.

States to the big farmers. Rands conveyed a false impression with respect to the ravages of a leaf blight when he stated that the "Ford Co." had "developed . . . resistant strains in Brazil." [21]

To solicit the appropriation for fiscal year 1946 Brandes showed up with his habitual enthusiasm. As the global war approached its end a speccial committee, ,he alleged, had agreed that the cooperative program in tropical America should be continued with the hope of attaining hemispheric self-sufficiency in natural rubber and of furnishing Latin-American countries "with a cash crop." "We actually now have nurseries and field plantings . . . amounting to . . . 20,000 acres," Brandes declared. "It is our conception that this . . . joint research and development program should continue with scientific control of every detail at least to the point where the producing plantations have reached tapping age, or until they reach economic maturity. . . . If this is done I think we have a right to hope that the program will be a success in terms of what we set out to do." He was thus doubling the seven-year term for the program that he had suggested in 1942. Inserting a colossal *if,* he continued: "If planting should start now and be maintained at a rate comparable with the maximum rate of the formerly expanding industry of the East I should say we could count on getting a third of our requirements of genuine rubber within the next 15 years from tropical America." This third would probably necessitate an annual production of plantation rubber in Latin America of not less than 200,000 long tons, provided due allowance was made for the expanding requirements of the Latin Americans themselves. Responding to an inquiry by Congressman Louis C. Rabaut of Michigan about the leaf blight, Brandes made this firm statement: "That fortunately is one of the research jobs that has been carried on right from the beginning and we can say with complete assurance that the South American leaf blight will not be a limiting factor in the development of rubber plantations." Who had been carrying on this research job, the Ford Company which, according to Rands, had already de-

[21] House Committee on Appropriations, 78 Cong., 2 Sess., *Hearings* (1944): "State Department Appropriation Bill, 1945," pp. 195-197.

veloped "resistant strains" as early as 1944, or the scientists of the Bureau of Plant Industry? Brandes like Rands sponsored the familiar small-farm idea, but also hinted at the need for larger funds for another purpose: "In practically every one of of our cooperations there is incorporated the development of the . . . family-size farm as a feature . . . but we . . . think somewhat larger plantations, either financed by the cooperating government or by private agency, are necessary in the beginning as a demonstration. . . ." [22]

Brandes sang the same refrain the next year when he appeared at the hearings of the House Appropriations Committee to request funds for fiscal 1947. "The work has progressed fortunately," he affirmed, "toward the objective, with now something over 30,000 acres of plantations either newly developed or salvaged . . . by crown budding, developed cooperatively through our program." Asked again about the leaf-blight problem, he replied: "We have an answer to the practical problem of growing the rubber trees in spite of that disease, namely, the crown budding that I just mentioned. . . . We have . . . a large number of strains of the Para rubber tree that are quite resistant to the disease." "In addition to that," he continued, "we are carrying on a long-term project of producing strains . . . that combine high yield and resistance to this disease. That is being done on the former Ford plantation on the Tapajos River in Brazil." The Ford Company had abandoned its Brazilian enterprise; but no explanation was given or asked. Perhaps it was better not to disclose the discouraging details.[23]

The drive for the rubber appropriation was spearheaded by Ross Moore in 1947, and progress was described in less confident terms. "Rubber is still largely a research problem," this new representative of the Bureau of Plant Industry admitted, in spite of the fact that the collaborative program had been in operation for seven years. He claimed, however, that "about

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[22] House Committee on Appropriations, 79 Cong., 1 Sess., *Hearings* (1945): "State Department Appropriation Bill, 1946," pp. 233-240.

[23] *Ibid.*, 79 Cong., 2 Sess., *Hearings*: "State Department Appropriation Bill, 1947," pp. 237-238.

16,000 acres" had been planted since the program's inception, "planted by small and big farmers in Guatemala, Mexico, Colombia, Peru, Ecuador, and so forth." Referring most likely to the Ford properties in Brazil, he said that "about 20,000 acres already planted but injured by leaf disease" had been "reconstituted by budding with resistant strains." Asked whether the rubber diseases had been eradicated, his answer was "No! we have not eradicated the diseases." But Moore explained that a new technique had been worked out that would make possible the "commercial production of rubber in an area rife with disease." It was a budding technique which involved the planting of a seedling, the budding of "a high-yield clone to produce a . . . trunk," and the budding of a "resistant top on top of that," thus finally producing a much-lauded "three-story rubber tree." Congressman Karl Stefan, Nebraska Republican, inquired whether the Ford plantation had "closed down," and elicited the reply that it had been "turned over to the Brazilian Government." Pursuing the subject further, Stefan asked whether any other company was active in Latin America, and got the response that Goodyear was "still operating in Costa Rica." [24]

Back at the hearings of the Committee on Appropriations once more in 1948, Brandes claimed that he had said from the outset that 15 years would be required to "establish the nuclei of scientifically controlled plantation rubber industries in this hemisphere." It seems certain that he had not told congress any such thing before 1945. He also claimed that the scientists of the Department of Agriculture had "salvaged" the plantation that Ford had discarded and felt sure that it would soon "become a success." As a matter of fact, Ford had owned two plantations —Fordlandia and Belterra. But nothing was said about the double fiasco. "We feel," Brandes declared, "that considering the difficulties that were involved . . . progress has been measurable and satisfactory. Rubber has been planted in 12 different countries and in four of them on quite a large scale . . . Altogether we estimate that there are about 35,000 acres . . . There

[24] *Ibid.*, 80 Cong., 1 Sess., *Hearings*: "State Department Appropriation Bill, 1948" pp. 1048-1049.

are plantings ranging . . . from 1 acre to 16,000 or 17,000 acres; the largest being in Brazil, Costa Rica, Colombia, and Mexico." (He seemed a little uncertain about Peru.) "One of the objectives . . . was to get these plantations started," he concluded. "I believe we can say that has been done."[25]

The most enthusiastic rubber promoter of them all was the late Henry G. Bennett, long-time president of the Oklahoma A. and M. College and first director of the Technical Cooperation Administration. He told Congressmen in 1951 that rubber was growing in sixteen Latin-American countries and that the Department of Commerce was engaged in rubber-development work in ten of them. The program, he declared, was "vital to the welfare of our own nation as well as to the economy of the nations involved." Deprived of an opportunity to regale the House members with the epic of the tripartite miracle sapling, he managed to describe it to the Senate Committee on Foreign Relations. "Rubber has had two great difficulties in Latin America," he began, "one with the roots of the trees and one with the blight that attacks the leaves. You will find . . . in the northern part of Brazil (that) we have a great rubber experimentation. There on . . . about 10,000 acres they are demonstrating that the three-story tree can be grown, the base . . . from the Brazilian seed, and then the body (from) . . . the best of the East Indies trees, and the top, which is the second graft, . . . resistant to blight. As the result of this cooperative research, I a m. . . convinced that rubber can be grown in the hemisphere . . . from Vera Cruz down to Central Brazil . . . including Haiti and the Dominican Republic. . . . This three-story tree has been perfected to the extent that nurseries are set up, and it is in supply sufficient to be distributed to individual farmers and to larger plantation growers." Sixteen cooperative experiment stations in as many Latin-American countries had demonstrated, Bennett said, that as good rubber could be grown in all of them as in the East Indies. Why not? The kind of rubber tree that

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[25] *Ibid.*, 80 Cong., 2 Sess., *Hearings*: "State Department Appropriation, 1949," p. 378.

was then cultivated in every tropical region originated in Brazil and had gained world renown as *Hevea Brasiliensis*.[26]

Following 1951, the funds for the cooperative rubber program in Latin America were merged in the billions appropriated for the Mutual Security Administration, later called the Foreign Operations Administration. Thus almost hidden from legislators determined to effect economies, balance the national budget, and reduce the national debt and federal taxes—if any such legislators still existed—the program received larger sums for its activities. Further concealment seems to have resulted on July 1, 1954, when the management of the program passed from the supervision of the Bureau of Plant Industry ot the exclusive control of the Foreign Operations Administration.[27] But two members of the staff of that bureau had already begun work on a monograph summarizing fourteen years of achievement. Finally published in November, 1955, it was a rather dull and laudatory pamphlet. The industrious and scrupulous reader, however, might be able to make a fairly accurate appraisal. Rubber research centers had been established in three countries—Haiti, Guatemala, and Costa Rica—and cooperative projects, at one time or another, in at least thirteen: two in Haiti, one in the Dominican Republic, two in Mexico, two in Brazil, and one each in Guatemala, Honduras, Nicaragua, Costa Rica, Panama (the Canal Zone), Colombia, Ecuador, Peru, and Bolivia. The only independent tropical countries of Latin America not included

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[26] For Bennett's masterful appeals for funds, see House Committee on Foreign Affairs, 82 Cong., 1 Sess., *Hearings* (June-July, 1951): "The Mutual Security Program," pp. 1444, 1461; Sen. Committee on Foreign Relations, 82 Cong., 1 Sess., *Hearings* (July-Aug., 1951): "Mutual Security Act of 1951," p. 426; House Committee on Appropriations, 82 Cong., 1 Sess., *Hearings* (Oct. 1951): "Mutual Security . . . Appropriations for 1952," pp. 702, 705.

[27] An International Operations Subcommittee of the House Committee on Government Operations, some of whose members made a brief tour of inspection in four of the rubber countries—Bolivia, Peru, Colombia, and Mexico—in October, 1955, made no mention of the program and revealed no awareness of its existence. The subcommittee's report, *House Report* No. 1985, 84 Cong., 2 Sess., is entitled "United States Technical Assistance in Latin America." The inspection also included Chile, Argentina, and Uruguay.

in the program were Cuba, El Salvador, and Venezuela. Chile, Argentina, Uruguay, and Paraguay were, of course, not in the tropics and not expected to grow rubber.

The aggregate cost of the program borne by the United States during fiscal years 1941-1954 was in the neighborhood of six million dollars. Several of the Latin countries had lost interest and ceased to participate. Rubber statistics at the end of the year 1953 for the eight nations still active follow:[28]

Country	*Clonal Trees in Production*	*Acres Planted*
Bolivia	none	125
Brazil	800,000	37,125
Colombia	1,500	775
Costa Rica	190,000	2,960
Guatemala	37,000	2,000
Haiti	104,000	1,400
Mexico	72,300	3,070
Peru	1,000	745
Total	1,205,800	48,230

It should be noted that this table, copied from the monograph mentioned, does not indicate *commercial* production, as the careless reader might naturally assume. The truth is that very little rubber from Latin-American plantations had been marketed by the end of fiscal year 1954. The information presented by the Department of Agriculture's scientists is very scanty and vague on this specific subject. No rubber had been produced in Bolivia, as the table reveals. Nor had any been placed on the market from the Peruvian or the Colombian plantations. Only a few hundred tons yielded by the Haitian plantings had been sold, hardly any more than those of Costa Rica and Guatemala, and only a few thousand tons from the plantations of Mexico and Brazil. Production had seldom gone beyond the stage of experimental tapping. The story of the first fourteen years of the collaborative program is not a story of profits but a narrative of battles with disease.

The experts of the Department of Agriculture seemed to be proud of the victories they had won, and would probably be sad

[28] Rands and Polhamus, *op. cit.*, p. 28.

when there were no more battles to fight. Wittingly or unwittingly they appeared to be saying that the contest with the enemies of the rubber tree and the development of mnay hybrid species were more important than the production of commercial rubber. But from time to time and near the end of their report they assured any legislator or taxpayer who chanced to read it that the future of rubber planting in tropical America was no less than brilliant. The plantations would eventually produce all the natural rubber required to meet the needs of the Western Hemisphere. They advised that the program be supported by the United States until that goal had been reached. Let officials, investors, and taxpayers stop counting their dollars. Another hundred million or so and another decade or two would advance the program to its destination.

With or without the approval of the supreme authorities in Washington they declared: "The United States objective is to create a 'living' stockpile within our defense zone that may eventually reduce or eliminate our costly stockpile of Far Eastern rubber stored within the country. Latin-American objectives are principally (1) self-sufficiency of rubber for internal consumption, and (2) to grow rubber as a cash crop on the undeveloped lowlands by colonists and settlers from the overcrowded highlands." The maintenance of the "dead" stockpile was requiring the expenditure of $28 million annually. Investment in a "living" stockpile "would be self-liquidating, and eventually provide great savings to the taxpayer." Association with an official of the Goodyear Tire and Rubber Company and some of the worried Solons of the Senate during the Korean Crisis had sent the rubber experts to the "crystal ball," and this was the vision it disclosed: rubber trees growing on thousands of family-size farms and on numerous demonstration plantations, publicly or privately financed, which were serving also as centers for plant distribution and the processing of latex.[29]

Congressional committees should subject this program to more careful scrutiny. Perhaps they might discover that the propensity to experiment had been and was still interfering with the pro-

[29] *Ibid.*, pp. 69-73.

duction of much-needed rubber. A distinguished head of a medical school once remarked, without conscious humor, that "research sometimes had to be interrupted in order to give adequate attention to the cure of patients." Maybe the emphasis in this collaborative rubber program needs to be shifted from the laboratory to the field. If the suggestion seems to reveal ignorance or lack of appreciation, and if a tone of sarcasm has crept into this narrative, apologies are now offered. Pleaders for appropriations in a day of extravagant phrases probably do not dare to disclose any lack of confidence. They must "puff and blow" in order to "wangle" their funds. But it is not so easy to forget taxpayers if one is a taxpayer himself and not also a bureaucrat —and let it be remembered that natural rubber is on the Defense Department's list of critical raw materials. Reporting on March 15, 1954, to a Senate committee investigating "Miscellaneous Strategic Raw Materials of Agricultural Origin," the Department of Agriculture stated that the minimum strategic requirement for natural rubber in the Western Hemisphere, exclusive of Canada, was in the neighborhood of 300,000 tons per annum. "There are now approximately 48,000 acres of planted rubber trees in the American tropics," observed the department in its memorandum. "When this rubber comes into bearing it should produce 20,000 tons annually. . . . To reach the minimum need . . . would require the planting of an additional 500,000 acres of rubber trees. . . . The present interest in rubber planting in Latin America would indicate that if there is no serious setback . . . the Latin-American countries can be self-sufficient within 10 years and can produce sufficient rubber to meet also the minimum strategic needs of the United States within 20 years.[30] Such was the prospect after more than five decades of effort and the expenditure of well over $100 million. The goal envisaged by the agricultural scientists was still at least 20 years in the future and not less than another $100 million would be required to reach it!

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[30] Senate Committee on Interior and Insular Affairs, 83 Cong., 2 Sess., *Hearings* (1954), Part 9, pp. 457-459.

Barriers to Inter-American Trade: The Economics of Self-Pity

*By John Hickey**

The Economics of Self-Pity looms today as the greatest barrier to inter-American trade and as the most important policy-influence and policy-philosophy in the economic development of Latin America.

Why are we interested in barriers to inter-American trade? The challenge in the Americas today is to achieve a two to three percent rise in production annually to meet the rise in population, and to achieve and *deliver to the consumer* an additional two to three percent rise in production annually to make possible the increase in living standards which is essential to social and political stability in the area. To accomplish that annual increment, it is necessary that external purchasing power be increased. "Barriers to inter-American trade" are discussed to determine whether and how the necessary pace of external purchasing power for Latin America is threatened by barriers to trade.

For an American audience, "barriers to inter-American trade" have come to mean governmental restrictions on the flow of goods *into* the *United States*. On some occasions a more discriminating audience is likely to have pointed out to it the fact that manipulative assistance to *U. S. exports* may be equally destructive of the concept of the free world market; and the export fraternity

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is sometimes cautioned that when it refuses to associate itself with the pleas of domestic industry for protection, it would do well to remember that such carelessness *in principle* must inevitably see some changes made that affect exports too. And since governmental restrictions on the flow of goods *into Latin America* tend to be much more effective barriers to trade than our own, the Latin Americans are on rare occasions asked to differentiate between cheap opportunistic pleas for help and devotion to the principle of freer trade. Yet, a definition which embraces these factors omits the root element which links "barriers to inter-American trade" to the central challenge of the good-partner policy, i.e., it omits the economics of self-pity.

Again, for an American audience, "barriers to inter-American trade" have come to carry a strong presumption of misbehavior on the part of the United States, a strong guilt-consciousness that has been built up with great competence and irresponsibility by the masochism of the State Department in its domestic propaganda, aided always by the institutionalized ignorance of the organizations which carry the ball for the Department, whether they be a foreign-trade group or a women's club, whether knowingly or unknowingly. The achievement of this presumption of misbehavior represents a dangerous stage in the enunciation and implementation of U. S. policy in the Americas, both in its effect on the ability to attain the objectives of U. S. policy and also in its effect on the Latin American's understandable aversion to facing the real issues as long as someone else is willing to accept responsibility for the failures.

Some facts should be emphasized:

(1) The United States is today much closer to being a free-trading economy than propagandists like the Hoffmans and the Randalls and even the churchman who recently brought the problem into the church with the charge that our policies are sometimes "hard to justify on either Christian or humanistic grounds" would have us believe.

(2) For Latin America specifically, U. S. governmental barriers to the inflow of goods into the United States are not *the* major factor and for many of the countries of Latin America are

not even *a* major factor in determining the expansibility of U. S. importations. When, for instance, only a piddling six percent of our imports from Brazil and Colombia and Central America are dutiable, and still the export capacity is not pushed to the necessary level and in some cases actually declines per capita, it is no aid to effective foreign policy to keep flogging the barriers imposed by the U. S. Congress as the central element in determining the development pace of these countries.[1]

(3) The great barrier to an expansion of imports into the United States from Latin America, the great barrier to expansion of Latin American exports to all areas, is the *refusal*—and the word is correct because it is a positive determination by Latin American policy-makers—the refusal to produce and market—up to the potential which these countries have—the goods that are wanted in the form they are wanted at the price they are wanted in the markets of the world.

This refusal comes from the very wide acceptance by politicians in Latin America, all too often aided by the best of their economists theorizing on the basis of political dead-fish, of the economics of self-pity as the ruling philosophy. While the communists have been able to capitalize on the economics of self-pity for their own ends, it is important to remember that essentially this is not a communist challenge to economic development in Latin America. In fact, a UN body has even concocted a systematic though shaky rationale for the economics of self-pity. The economics of self-pity takes various forms in its impact upon the flow of merchandise to market:

(a) It may be that a country has a five hundred or a thousand years supply of iron ore. Yet, at the first approach of an efficient producer with a suggestion of a $200 million investment to ship ore abroad and broaden the resource-base of the economy, the economics of self-pity dictates an indignant refusal of facilities to do so, on the ground that "this trade will deprive us of our resources."

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[1] It is true, of course, that fully effective barriers might reduce dutiable imports to zero and that thus the figure on proportion of dutiable imports is not always a satisfactory gauge. However, this does not apply in the cases under discussion here.

They would rather surrender their national and personal dignity to apathetic dependence on donations from the United States, they would rather risk the discovery of competing supplies or development of substitutes, than be "deprived of our resources." And so the economics of self-pity drags on, and another generation lives in miserable poverty, while the same politicians responsible for it deplore constantly the unwillingness of the United States to share its achievement with the less-fortunate countries—the less-fortunate having in large measure succeeded in remaining so by reason of the absence of leadership willing to capitalize on the resource-potential given them by a generous Nature.

And from the lush Waldorf-Astoria in New York and from the Mayflower in Washington come denunciations by Latin American diplomats or by nationalist-businessmen who are behind them, denunciations of the U. S. for its refusal to share its wealth more freely, for its refusal to lend without reference to capacity to repay, or most frequently, denunciations of those mythical trade barriers about which they hear so much from the State Department and its propagandists that they are forced to believe (not unwillingly) that these constitute the real difficulty.

(b) Again, the economics of self-pity may take the form of insistence that the export of raw materials like rubber or bauxite or sulphur or copper be prohibited and that foreigners or domestic interests, as the case may be, be forced to produce tires, etc., and export industrialized products from the raw-material producing country. All this, regardless of the fact that the particular country may still be far from the stage at which it can compete in world markets with industrialized products, and in disregard of national priorities which dictate that with the limited human and financial resources at its command, other outlets for the national energies may be more promising of an advance in the standard of living.

And so export controls are decreed by the economics of self-pity as a "defense against the plot against the national welfare." And the result is that the country too often loses even more ground in international trade by the barriers it has created and thereupon gives itself over to a furious exercise in self-pity—which under current circumstances is calculated to evoke from

the bleeding-hearts in this country further support for enhanced foreign-aid and for assumption of responsibility for situations over which we have no control.

In Ceylon recently, for example, it became "imperialist exploitation" when the rubber planters and industrialists in England did not create immediately a rubber manufacturing industry; it became a matter of "imperialist-imposed international division of labour," and it could be solved, they said, only by the expedient of banning the export of any raw materials which can be processed locally. What a time to play with the trade in rubber! Surely, these are the meaningful types of trade barriers today and not the piddling restraints on imports imposed by the U. S. Congress.

(c) Or take the case of Mexico. In the past decade, great discoveries of sulphur by private initiative, enough to hold out the promise of a major addition to Mexican export earnings, have come to the aid of a nation harassed by devaluations of 60% in the value of the peso in seven years. These sulphur discoveries came from a venture of great risk and boldness, and the financing of the venture has been strenuous, to say the least.

But hardly had the first exports been introduced to world markets, than a campaign broke out in Mexico this spring—a seemingly-inspired campaign—that "gangs of foreigners are taking our sulphur." The campaign took the traditional pattern: claims that the industry pays only starvation wages, that foreigners are refusing to industrialize the product locally, that ten times as much is being shipped as is being declared for tax purposes.

Now, of course, the facts were quite different, and it would have been possible for the government to have slapped down the charges hard and immediately. After all, one major company in the trade far from making profits was already in serious financial trouble; another was bleeding from the strenuous effort to introduce the product into an already well-served market; a third was yet to come into production. The wages were higher than the area had ever known before, and substantial employment was being provided in a normally under-employed area. The government had a reporting system which enabled it to keep tabs

effectively on production and export. And the contrast with industrialization of the product in England had no logical parallel in Mexico, in view of the different character of the product.

But the economics of self-pity provided a climate of ready acceptance of the inspired campaign within and outside the government. Yet, could such acceptance do anything but cause a redoubling of the effort to find competitive supplies possibly in our own off-shore operations or in other parts of the world? Could it be characterized as anything but an effective barrier to trade and to achievement of the level of external purchasing power which is needed for social stability in Mexico?

(d) Again, the economics of self-pity dictates that in times of temporary exuberance in the market for a raw material, the government moves in on the price structure and forces exporters to raise tremendously the price at which they sell, converting a temporary situation into an exploitative bleeding operation of enduring effect. If the vendor suggests, as did the Braden Copper Company in 1956 in Chile, that such a price level may be dangerous in that it will encourage substitutes as well as the expansion of competitive sources elsewhere, and that the net effect of the price manipulation may be to serve as a new barrier to trade, the producer is likely to be accused of a plot against the national welfare.

And yet, when the unhappy day comes when a substitute is found and forges into market position at the expense of the price manipulator, or when outside production takes advantage of the situation, the United States or its investors are sure to be reprimanded for unfriendly action, for loss of the national position in the world market. But who was actually responsible for this barrier to world trade? Those who compelled the search for substitutes or those who quietly answered the economics of self-pity by shaking off dependence on the unreasonable suppliers?

What is unfortunate today is that the economics of self-pity has been linked up with professional mendicancy, in a pairing of domestic and external policy-philosophies. Given the weakness of U.S. foreign policy currently, delinquency is therefore encouraged by the response to the external factor in the policy

pairing: the United States proves willing to carry the load, whether by the purchase at excessive price (under existing circumstances) of unnecessary volumes of the raw materials—wholly unrelated to strategic stockpile considerations, it should be added —or by other methods.

A similar situation might be cited of the long period when Chilean nitrates were being challenged by the synthetics, and when the only response to pleas for sympathetic treatment by the government for an industry seeking to bolster its competitive position by heavy investment in technological advances was the post-war complaint to the U. S. Government on handling of release of government facilities.

Or, take the case of tin. Recently an American manufacturer hailed the coming of the era of the tinless tin can. It may be, as one element in the trade has suggested, that the saving of metal as a result of the new development may be much less than feared, that so far tinned plate appears to be the only economic material for canning fruit and similar foods, etc.[2] Yet, the new process is only one further indication of the pressure of technology on an industry that fails to encourage broadening of the market. And specifically, what happens when demand for tin falls off and the country in this hemisphere which was a major producer of tin has wrecked its competitive position vis-a-vis other producers by stealing the tin mines from their owners and unloosing a measure of labor indiscipline and frightful managerial incompetence that both cuts production volume and destroys competitive capacity? Who set up this barrier to inter-

[2] According to American Can Company, a new process for soldering cans, developed as part of a program to locate substitutes for tin, will save 2348 tons of tin a year in U.S. consumption alone. A. Strauss & Co. in a review of the tin market made after the announcement noted that the effect might be less than had been feared, considering that tinned plate appears to be the only economic material for canning fruit and similar foods, and that some 33,500 tons of tin is used in U.S. for tinplate manufacture as against a total virgin tin figure of 59,100 tons for all purposes. Meanwhile, scientists at Virginia Technical Institute reported that in three years an aluminum plated container would knock out the tin can, a new electrolytic process having been developed for plating aluminum on steel.

American trade? Again, unfortunately, the successful policy of professional mendicancy shifts responsibility for the delinquency to other shoulders and if anything encourages further development of the domestic philosophy of the economics of self-pity.

(e) In this connection, the views of Ezequiel Padilla properly command attention. Padilla is one of the most intelligent men ever to have concerned himself with hemisphere policy—its implications and the potential of implementation. Padilla sees Latin American products "meeting increasingly powerful competition from Africa" so that "many of the countries with one-crop economies are mortally threatened." He sees "modern technology conspiring against New World products by substituting synthetics for fibers . . . The whole Mexican state of Yucatan, once prosperous from cultivation of henequen, is now suffering an acute crisis because henequen is being sold at lower prices in Africa and because it can be replaced by synthetic fibers . . . Copper, used especially in the electrical industry, is being successfully replaced by aluminum alloys.[3]

Yet, even this extraordinary Latin American mind winds up the examination with the lament that "Latin America has stoically watched its wealth vanish." He seems to fail to comprehend fully the role of domestic philosophies of development, particularly of the economics of self-pity, and prefers instead to turn to the typical prescriptions such as *more* barriers to trade in the form of commodity cartels underwritten by the United States (one of which is cited as a model, apparently because "it brought a sharp rise in prices" to the American consumer!), and hemisphere trade agreements which are wholly unrealistic in the world in which we live.

(f) The limitations of the philosophy of self-pity are nowhere more conspicuous than in the case of coffee. In three successive frauds perpetrated in the American coffee market in the years since 1949, the price of coffee has been brought to a level some 700 to 900% of prewar, and has understandably stimulated production so immensely that vast over-production looms,

[3] Ezequiel Padilla, "The Meaning of Pan-Americanism," *Foreign Affairs* January 1954, p. 277.

and meanwhile consumption has been cut so successfully that exchange proceeds from the volume of coffee have failed to expand as "needed."

Having achieved the questionable goals of sharply over-expanded production and reduced consumption, having attended to the desires of the gamblers in their midst (at one point even a government Treasury was depleted in an effort to finance speculators who had guessed wrong) and having seen both their balance-of-payments positions jeopardized and national treasuries strained, the economics of self-pity dictates that these countries ask, nay demand, that the United States cooperate in setting up a new barrier to trade. Note well: Set up a new barrier to trade! That is, that the United States consent to operation of an international cartel among the producing countries which would keep prices far above the level dictated by demand and supply, which would thus further stimulate production and further discourage consumption, and create a steady deterioration in the trade relationship which could only mean a major collapse thereafter. At which point the external policy of professional mendicancy would be expected to come into play sufficiently to have the U. S. underwrite the whole mistake.

And who seeks this "barrier to trade?" The very Latin Americans who, from the comfort of the Waldorf, can protest that U. S. barriers to trade are an obstacle to their development.

Let us be constructive for a moment: A $30 million advertising promotion to stimulate the consumption of coffee in this country, paid for by exporters of the $1.5 billion of coffee that reaches us annually, would do more to stimulate trade in coffee than any barrier that the Latins may be able to concoct and politically force upon the United States in the next decade. It would do more to ensure a profitable relationship between production volume and consumption volume than any such barrier. We might go beyond that: A $30 million advertising appropriation for coffee would do more for the volume of U. S. imports, add more to the external purchasing power of Latin America, than anything which the U. S. Congress might conceivable do to legislate larger imports of products of the Latin American coffee countries into the United States.

But because this solution involves self-help rather than self-pity, it falls on unhearing ears in Latin America. And because it involves self-help rather than a tap on the United States Treasury, it can be conveniently overlooked by the Randalls and the State Department in favor of blasts against the so-called U. S. barriers to trade.

This brings us to a curious fact in the status of trade-barrier discussions in the United States today. The very people who blast U. S. import barriers as destructive of inter-American developmental hopes, these very people are in favor of restrictive cartel arrangements on Latin American exports, commodity agreements to apportion world markets with all their promise of encouragement of substitutes and price maladjustments. They are the same people who insist that the United States ignore demand and supply factors in the market; and instead of stopping with military or security stockpiles, that it buy minerals and other commodities in endless fashion, call them "special" stockpiles in order that the man on the street may not know what is going on; trade agricultural surpluses for minerals with the one proviso that any minerals acquired be guaranteed NOT to be necessary or salable either for current use or for the real stockpile. That is, guarantee that the acquisition is lacking merit.

In other words, these same people are willing to disrupt entirely the working of international markets in commodities and to build up a situation of complete chaos. To be underwritten of course by the U. S. Treasury. Yet, for the inconsequential barriers to trade which Congress has imposed on imports, they have nothing but fierce blasts that multiply the actual effect of the barriers into something damaging to the prestige of the United States.

A sort of Voice of America in reverse.

Nor should the export community be spared in this analysis. Many of the foreign-trade specialists who are beating the drums today against barriers to imports are simultaneously demanding *aid for exports* which is equally destructive of the principles of free trade. When they ask Washington for tied loans, when they ask Washington to socialize the risk without disturbing the profits on exports, when they ask Washington to overwhelm their

foreign competitors through a commercial-credit war and hurt both the exporter and importer country thereby by misuse of credit and redirection of trade, they might better realize that they are not acting on principle in taking a position on import barriers. And when they support professional mendicancy beacuse it will make it easier to sell in Latin America, they are surely not adopting a position in principle.

It is sometimes said that the U. S. program of concealed-donations of farm surpluses through the device of selling for local currencies and assumption of exchange-rate risks and/or other devices to assure non-repayment is a barrier to effective trade relations. It is a curious fact that when Argentina begs for $50 million in such concealed donations and wins $25 million, Argentina considers it a healthy transaction in international relations, a fine example of partnership in international affairs. But when a similar quantity of wheat is shipped on the same terms to Brazil or some other destination, the policy in Argentina eyes becomes violative of all decency and of international law and order! Yet the transactions were identical in motivation and form. There is something less than principle being invoked by our Latin American friends who protest the U. S. program for disposal of farm surpluses, just as there is something less than honesty involved in the manner in which the true character of these transactions is being concealed from the American people in the steady propaganda on "sales" and "recapture" of export markets.

It would be more pertinent to stress that some 15 to 20% of the external purchasing power of Latin America today comes from those very "barriers" to international trade which our domestic policies have created, and that without such "barrier reflections of domestic policy" Latin America would be suffering fearfully from declines in external purchasing power. Of course, no attempt is made by the State Department to point this out, since it would interfere with the essential masochism of its domestic propaganda.

Latin America has even been able to work up a theoretical structure for the economics of self-pity. The ECLA thesis apparently is that Latin America is caught "in the inexorable work-

ings of a process that condemns them to the role of second- or third-class citizens in the modern world." It rejects the open market and advises the Latin American countries to use protection for their own domestic industries, to prevent most of the gains in productivity in these so-called peripheral countries from being exported to the more advanced industrial countries.

Yet, refutation of the thesis has been quick and authoritative, suggesting that the cause of industrial backwardness in Latin America is not found in an inherent tendency of the free world market to deny these countries a role as industrial producers, that there is no evidence to establish the existence of an inevitable secular deterioration in the terms of trade of countries producing primary products and that there is some reason to believe that the future trend instead might be in favor of these countries. There is no inherent tendency in a freely developing world economy to "assign" these countries the exclusive role of suppliers of primary products, and that even if such tendency did exist, there is no inherent tendency for producers of primary products to make slower real-income progress than the producers of industrial products. Far more important than U. S. import restrictions for the failure of Latin American exports to expand have been the indifference to the requirements of marketing, the combination of domestic inflation and pegged exchange-rates that discouraged the willingness to buy in such high-priced markets; and often the confiscation of a portion of exchange earnings of domestic exporters has not created the optimistic productivity-increasing spirit in export industries. The loose manipulation of exchange rates and export duties have not encouraged businessmen to become dependent on supplies from such countries.[3]

In an era in which the Latin Americans profess to understand the challenge of economic development, in an era which Professor Stokes of the University of Wisconsin has recently characterized as one of "immense intellectual ferment in Latin America," they are still being encouraged to ignore the implications of techno-

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[3] See Benjamin A. Rogge, "Economic Development in Latin America: The Prebisch Thesis," Vol. 9, No. 4, pp. 24-49, *Inter-American Economic Affairs.*

logical change, of technique in marketing and production.[4] The example of coffee may be cited. In recent months the Latin Americans at the Pan American Union have been sounding the alarm for a coming collapse in the coffee countries as a result of the over-supply of coffee and the failure of consumption to improve. Not once in the past decade have they given any consideration to serious development of the market, not once have they considered the attitude of consumers as important to their sales in this market, not once have they paid any attention to the steady buildup of ill-will for their industry, as fraud and deception followed on fraud and deception. Just as General Foods Corporation, the dominant firm in the coffee field in this country, has now been able to come up with a coffee-substitute which is quite drinkable and the comparative health qualities of which have tended by a perfectly remarkable advertising campaign to make Americans increasingly conscious of the potential damage which coffee-drinking may be doing to them,[5] just so is it conceivable that an expenditure of $4 or $5 million in the Department of Agriculture research laboratories or in private laboratories might

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[4] See A. C. Harberger, "The Paley Report: Four Years Later", *Quarterly Review and Investment Survey* of Model, Roland & Stone, Second quarter, 1956. Harberger finds that even the Paley Report was over-conservative in allowing for substitutions arising out of technological advance. And he notes that "the three major materials for which shortages and stringencies were regarded as likely by the Paley Commission—copper, lead and tin—were among those for which demand failed to rise at the anticipated rate.

For countries where the economics of self-pity finds implementation in deliberate retarding of the pace of development of natural resources, Harbinger's comment that "the pervasive influence of technology in the materials picture is hard to overestimate" should serve as a warning. And his illustrations on substitution are very meaningful.

[5] The advertising copy in the campaign (for Postum) has been superb, built around the theme that "your doctor would be the first to tell you that for some people one of the worst offenders against the human nervous system is the caffein in coffee." Remembering the difficulty that even an industry with good public-relations (cigarettes) had when researchers began to link cigarette smoking with lung cancer, one shudders to think of the clean sweep that could be made of the coffee market if ever some such research finding of disease-association with coffee appeared. It is a $2.5 billion plum that is just waiting to be knocked off by a competing beverage.

eventually develop a fully effective competitor to coffee that would be healthier and might even have the advantage of utilizing some our domestic farm surpluses in the process. In an era of rapid technological change, a $2.5 billion retail market is an obvious target for industry. Picture the situation if a well-financed advertising campaign were to be launched for a new and better substitute hot beverage after six or seven years when the public has been enraged by price increases criticized by a series of congressional investigations and a major executive-branch investigation, spiced with three White House statements.

Yet so careless have the Latin Americans been, so apathetic, so assured that the U. S. Government will be available to serve as a fat-boy to carry the effects of all their policy errors, that they have seemingly deliberately generated a maximum of ill-will and created an ideal situation for abandonment of their product. This for a product which accounts for 27% of the external purchasing power of Latin America, for a product whose consumption per capita in the United States during the greatest boom in history declined some 16% from 1947-49 to 1955.

It is perhaps proper to note that it is from the coffee spokesmen also that have come the most pronounced views on a "stabilization" of commodity prices out of line with demand and supply so as to produce, they hope, a larger purchasing power for Latin America. "Coffee," laments one very intelligent representative of the coffee producers in this country, "remains one of the few important commodities which is produced and marketed without major or general economic supervision." The meaning of this is of course not clear—having in mind the systems of export minimum prices in Brazil with government participation in holding coffee off the market, the Federation serving as a controlling mechanism in Colombia, and the various devices in effect in Central America. But the argument of these opponents of "barriers to trade" is that if the United States were to underwrite a scheme which would keep coffee prices so high as to encourage new intensive and extensive exploitation of coffee lands and discourage consumption, it would probably only mean that each American consumer would have to divert from his expenditures on other commodities, say, $5 to be handed to the

coffee producer and/or middleman/gambler, and with this $5 more merchandise would be bought from the United States, ending what one Latin American ambassador who opposes barriers to trade vigorously calls the "great danger that the U. S. will be saturated with the products of its mills and factories." Why the average consumer should submit to this transfer of his purchasing power to a foreign producer who may in many countries be immensely more wealthy than the U. S. consumer is not clear, nor is there strict identification of the gain in desaturating ourselves emanating from purchase of the $5 worth of merchandise by a Latin American who gets the donation rather than by the North American who sweats to earn the money.

Let us be frank. Economic development does not mean the dropping of a hundred million dollars from an airplane over a major city of Latin America. It does not mean the shipment of the most advanced machine to a country which has never even experienced any of the less-advanced industrial machines in that particular line or in most lines. Economic development in large measure is a state of mind. It requires an environment which is capable of absorbing the new techniques, the new money, the new methods. When a region reaches a position where it exports $2.5 billion of a single commodity, it has marketing techniques to consider, for the dollar being earned is earned only in competition with other uses for the dollar. And the tempo of technical progress dictates as much attention to marketing advances as to the steel mill which is introduced with such eagerness and fanfare. When you have a resource capable of adding $200 million per year to your external purchasing power, you have to have the mentality to understand that technology waits on no man, and that twenty years hence this resource may be totally meaningless, it may be outdistanced and made obsolete. And in a world which is all at once alert to opportunities for advancement, a region in "immense intellectual ferment" must comprehend that a lowering of the standard of living of the U. S. to that of Libya or Ecuador would not leave much improvement for the other countries per capita. That is, it is not a matter of sharing the annual fruits of the American achievement. Instead, it is a matter of matching or improving on the

environment which has proved capable of producing the high level of living which is enjoyed in this country.

Let us next examine a case study: Brazil. Eight years ago an emissary of the Brazilian President came to the United States to negotiate regarding Brazil's fabulous iron-ore deposits. A vast proposition was finally cooked up which involved an immense barter of ore for U. S. coal, a great jointly-controlled fleet plying ocean with iron and coal, a new plant to supply pig iron to Argentina in exchange for breadstuffs, a development of Brazilian manganese—all in all something very, very big.

But when the deal reached Brazil, the immediate thought in the government was: How can we let these resources get away from us this way? It was of no pertinence in Brazilian thinking that there would still remain enough ore for centuries of local requirements, or that there was urgent need for some impelling force on balance of payments to achieve an economic breakthrough. The deal collapsed under the economics of self-pity. Thereafter competitive sources of ore were located and developed. Brazil sat on its ore.

Meanwhile, the country has been embroiled in a series of financial crises, stemming essentially on balance of payments from the absence of a stimulus such as 10 million tons of ore exports annually coupled with the deep investment required might have meant for the whole economy. What would have been only a piddling $150 million requirement to accomplish the Joint Brazilian-American Commission's recommendations for basic facilities became hopeless of achievement under the pressure to "preserve our resources against the encroachment of foreigners." Real wages have fallen steadily, the overseas borrowing position of the country has suffered, and stability is by no means assured—either socially or politically.

Yet, the State Department talks U. S. trade barriers as the horror exhibit for the official line for internal U. S. consumption. About 6% of our imports from Brazil are dutiable. No substantial expansion of U. S. imports would be conceivable through action by the U. S. Congress. There is a basic rule of trade that you have to produce before you can trade. And if the situation

does not stimulate production, you have nothing to sell, nothing to trade.

Trade barriers? Yes, there are trade barriers in the Brazilian relationship but they are self-imposed. Take an example. Brazilian coffee interests have an almost unbroken record of lack of interest in the national welfare. During the three frauds in coffee since 1949, they have managed to surrender to Africa 10% of the world market once held by Brazil. They have forced upon the Brazilian economy the burden of an $800 million carryover, with its effect on both credit and currency issue in an economy being ruined by inflation. They have helped cut consumption in the United States per capita by 16%. And they have encouraged the growth of instant coffee which will not only reduce the volume of coffee used in the United States but also automatically reduce Brazil's share in favor of Africans.

Some achievement! Nothing that the U. S. Congress could have done could possibly have served as a barrier to trade in the magnitudes the Brazilians themselves achieved. Yet, it was purely a Brazilian decision and one properly within the competence of Brazil to make. A decision taken to favor a small element in the community which concurrently refuses to carry its share of the taxes essential to internal development and has been bleeding the exchange market constantly by under-valuation of exports and other such irregularities.

Again, a commodity market that functions unsatisfactorily can be as great a barrier to healthy trade as anything else. Yet, after an official U. S. study suggested that certain practices on the existing exchange were unsatisfactory for both producer and consumer, there was no support from Brazil for regulation of the exchange, and in fact the State Department, whose allegiance to elimination of barriers to trade does not go as far as favoring action on a matter as important as this, reportedly was asked by the Latins for support in preventing the Coffee Exchange from being subjected to the type of authority that functions for other organized commodity exchanges in this country.

What is being suggested here is that there are distinct limitations on what the United States can do for Latin America, regard-

less of its good wishes and intentions. There is a point at which a sovereign nation in Latin America has to decide how interested it is in economic development as against other objectives. And it is dangerous for the U. S. State Department to accept on behalf of the United States the blame for any situation that may arise in Latin America, to lead to expectations that the U. S. will bail out any country at any time regardless of the nature of the errors that it may make. We can make no guarantees of this kind nor can we expect to be able to comply with such commitments with sufficient consistency to prevent a worsening of our relations with Latin America.

Another illustration might be offered to indicate that this is not just a matter of the relationship of the United States with a given Latin American country. Trade barriers are a matter of inter-Latin American relationships as well. Mexico has in recent years emerged as a prominent factor in three commodities where its weight had not been previously felt seriously in world markets—coffee, cotton, sugar. Intelligent Mexicans like Padilla have protested that the basic commodities are problems that separate our peoples instead of uniting them, that we need some sort of continental economic convention. But notice that the pleas for barriers that would protect Mexico's position in these commodities hit directly at other Latin American countries as well as at the United States and are thus self-defeating in continental terms:

On coffee, Mexico lives and expands on the policy errors of the Brazilian Coffee Institute, on its persistent evacuation of world markets. And it aspires to an international cartel which would make permanent the Brazilian loss of position, impose on Brazil the burden of carrying most of the load of the anticipated overproduction, while maintaining prices at so lucrative a level that Mexican output would inevitably continue to rise. Is there a thought here that Brazil can afford a barrier of this kind, in behalf of Mexico and Colombia, at a moment when it is in even worse shape than its neighbors financially and economically?

On sugar, Mexico lives on the ability to squeeze Cuba and on the hope of pushing Cuba around in the U.S. quota system. Mexico came into the world market as a sizable factor in deliberate disregard of the fact that sugar was already in terrific over-

supply, that the world market was one of difficult maladjustment.[6] Yet, having dealt itself in, it expects Cuba to move over, and it insists that the U. S. Congress be the one to work on Cuba.

On cotton, Mexico moved in on the stupidity of American farm legislation, and on the evacuation of the world cotton market by the United States, and by maintenance of a world price level by the United States that was utterly ridiculous. Now, at the slightest gesture of re-entry by the United States into the world market at prices more nearly in accord with those dictated by demand and supply, the Mexicans protest that the U. S. is imposing a trade barrier to the movement of Mexican cotton. Yet, every movement to restore competition in the world market is a step away from unsound trade barriers.

It would be entirely possible to theorize that Mexico would have done better to concentrate more of its energies and resources on the expansion of its petroleum industry, to assure a domestic energy supply to pace the economy and selectively improve its export position. But there, domestic politics interfered. And so it is easier to throw responsibility onto the United States for not surrendering more of its world cotton market permanently by reinforcing the barriers to trade which its faulty domestic farm policies originated, to throw responsibility onto Cuba and the United States for not discriminating more against Cuban sugar on behalf of Mexican entry in sizable magnitudes here, to throw responsibility on to Brazil for its unwillingness to support the Mexican peso at the cost of its own economy. Who in Mexico can properly speak in terms of principle on this matter of trade barriers? And how can the United States so willingly accept the label of malefactor? * * * *

[6] A more striking case of the intra-Latin American difficulty is the Guatemalan position in sugar. At the last hearings on the sugar legislation in Washington, Guatemala sent a representative to warn that although it does not now seek a quota, having no sugar to furnish, it plans soon to create an export surplus, and since the world situation is such that the expansion of production is being made in the face of no demand for the additional product, it would like the Congress to know that probably at the next revision of sugar quotas it would seek to cut in for a quantity. It may be that a better solution would be for a country not to encourage the production of a commodity for which export demand is so uncertain.

The attractiveness for the politician of public policy based on the economics of self-pity and professional mendicancy is not difficult to understand. Our own politicians have also experienced the lure of these policies in their handling of farm legislation domestically. What is important, however, is that the limitations of these policies *technically* be clarified, that their relative impact on the central problem of economic development be fully explained so that undue emphasis will not be placed on factors directly within the control of the United States such as import restrictions, and that particular groups in our own community should comprehend fully the meaning of the positions they take in principle.

It is shocking that the universities are doing virtually nothing in the way of serious economic analysis in the inter-American public-policy field. A tremendous opportunity for intelligent appraisal of public-policy recommendations has existed in the flood of publications of the Economic Commission for Latin America. Yet, from the universities has come virtually nothing in the way of serious analysis of these documents. The task is not one for the huge collective projects which are so appealing to the Ford Foundation and to the mediocrities who breed and staff so many of the collective projects. Nor is it for the part-time associates of the State Department, torn as they are between the attraction of "going along" with the Latins or with existing policy, and the lessons of experience which they may know if they hold or have held any position of importance within the government. Again the advancing methodology of propaganda designed to place undue responsibility upon the United States for the failure of the pace of development to accelerate adequately should not so long have escaped critical appraisal. When millions of dollars are being spent to prove that the north side of West Allen Street in South Passaic, North Dakota stands to lose $13.64 weekly if a certain rate change affecting imports of Venezuelan oil occurs, it is time for the universities to produce competent analyses of these techniques.

It is important further to identify the positions that are being taken in principle as against simple opportunistic pressures on the Congress. The industrial exporter who rushes to Washington to

protest that without tied loans that compel business to be placed in the United States instead of being awarded competively he cannot compete; the capital-goods manufacturer who presses Washington for revisions of export-credit insurance and export financing that would force the U. S. government not only to take more of the risks of export but more importantly would force the government to use the whole weight of its financial superiority to wrest business from less financially-strong competitors; the manufacturer who gloats in the virtually free distribution of $50 million of wheat because the savings in dollars can be used for industrial products, although the deal is as destructive of competitive trade as are many of the barriers to aid weaker American industries which he has piously objected to as a deterrent of trade; when the farm organization asks the United States Government to pile up without limitation bartered minerals and thereby disrupt the whole course of the minerals market, in order that some of the farm surpluses may be disposed of and thus the weaknesses of domestic farm policy be partly concealed; when a trade association supports "stabilization" of prices at higher levels than the market dictates because it will produce more dollars for expenditure in the United States regardless of the effect on the source of those dollars; when these things happen, there is no display of principle involved in their support simultaneously of propaganda that would make U. S. import restrictions appear to be the central problem in the economic development of Latin America.

There is a theory in the State Department that if all blame for everything is accepted by the United States, if the arguments of the Latins for uneconomic measures are not countered effectively, if competent judgment is not expressed when advice is sought and offered perhaps when it is not sought, that in some way the purposes of the good-partner policy are being furthered. Nothing could be more remote from the truth.

As far as our neighbors in Latin America are concerned, there are some facts that simply cannot be avoided: Latin America today is the core of the protectionist movement, trade barriers have gone up steadily and are still going up against imports—especially in those countries which protest most loudly against U. S. trade bar-

riers. There is no consistency in principle in demanding continental conventions to reduce competition in trade in Latin American specialties at the expense of the U. S. consumer and simultaneously berating the U.S. Congress for barriers that it originates. Above all, the central domestic policy centering on the economics of self-pity must be recognized as the core-problem in the acceleration of economic development, and mendicancy as an external policy must be recognized as having very serious limitations among self-respecting independent nations. The pace of Latin American development is likely to accelerate in proportion to the speed with which the economics of self-pity is shed as the guide to policy. And no more rapidly.

The Terms of Trade Between Primary Producing and Industrial Countries

*By P. T. Ellsworth**

I

There are few hardier perennials among discussions of international economic relations than the problem of the terms of trade between primary-producing and industrial countries. Of the various views expressed on this topic, the most challenging is probably that of Raoul Prebisch. Referring to the period of some sixty-odd years between 1876 and 1938, during which there appears to have been a decline of 36 percent in the terms of trade of primary for industrial products, Dr. Prebisch has attributed this worsening of the position of the primary-producing or peripheral countries to elements of monopoly in the economies of the industrial or center countries.

"Speaking generally, technical progress seems to have been greater in industrial than in the primary production of peripheral countries . . . Consequently, if prices had been reduced in proportion to increasing productivity, the reduction should have been less in the case of primary products than in that of manufactures . . . Had this happened . . . the benefits of technical progress would thus have been distributed alike throughout the world . . ." This did not occur, however—"from the 1870's until the Second World War, the price relation has turned consistently against primary production. With the same amount of primary products only 63.5 per cent of the finished manufactures which could

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be bought in the 1860's were bought in the 1930's; in other words, an average of 58.6 per cent more primary products than in the 1870's are needed to buy the same amount of finished manufactures."[1]

The explanation of this phenomenon is to be found in the relative cyclical movement of the prices of industrial and of primary products. "The prices of primary products rise more rapidly than industrial prices in the upswing, but also they fall more in the downswing, so that in the course of the cycles the gap between prices of the two is progressively widened . . . The reason for this is very simple." Owing to imperfect competition among industrial producers and to the superior organization of labor in the center countries, prices of industrial products and wages of industrial workers are relatively rigid during the downswing. "The pressure then moves toward the periphery, with greater force than would be the case if, by reason of the limitations of competition, wages and profits in the centre were not rigid." This is the clue of the phenomenon whereby the great industrial centres not only keep for themselves the benefits of the application of innovations to their own economy, but are also in a more favorable position to obtain a part of those deriving from the technical progress of the periphery."[2]

[2] *Ibid,* p. 13.

II

This view has by no means gone unchallenged. With his usual acumen, Professor Viner has pointed out that long-period comparisons are largely vitiated by the fact that the price indices used for manufactures give no weight "to the gain in utility from the new commodities which have become available, such as the automobile, the tractor, and penicillin." Moreover, even "where the manufactures are nominally the same, they have over the years become incomparably superior in quality," whereas the primary commodities used in their price indices "are for the most part . . .

[1] United Nations, Economic Commission for Latin America, *The Economic Development of Latin America and Its Principal Problems.* (E/CN.12/89/Rev. 1. 1950.) P. 8.

not superior in quality and in some cases are perhaps inferior."[3] A modern nylon cord tire serves the same purpose as ten or more of the earliest tires, and does so better, but a ton of copper is still a ton of copper. Hence if the copper producer can today get only 20 tires for a ton of his products as against say 40 some fifty years ago, the exchange has moved in his favor, in terms of real satisfaction, rather than against him.

Viner also notes that the more rapid the increase in a country's population (whether it be predominantly agricultural or predominantly industrial) the larger will tend to be the volume of its exports and therefore the worse its terms of trade. We might add that were it not for the relative restraint on population growth in the industrial centers, retention of part of the gains of increased productivity in the form of higher wages would have been most unlikely, and that similar restraint in the primary producing countries would have tended to produce the same results. Thus it may be said that in a sense the peripheral countries chose to take the gains of increased productivity in the form of a larger population rather than in higher per capita incomes and better terms of trade.

III

My main concern in this paper, however, is not with considerations which bear upon the total change in the terms of trade over the entire period 1876 to 1938, but with impressions which arose from examining movements within the long-term trend. Examination of the figures used by Prebisch, as well as other similar series, indicate that the net downward movement of the terms of trade of primary as against industrial products took place in three clearly marked stages. The first of these covered the period from 1876-80 to 1901-05, and was followed by a relatively level plateau until 1913. (During the first World War, the terms of trade turned sharply in favor of primary producing countries. This is shown in one of the indices in Table 1, but not in the figures used by Prebisch, which appear to have been column (3)

[3] Jacob Viner, *International Trade and Economic Development,* Glencoe, Ill., 1952, p. 143.

TABLE 1

Terms of Trade of Primary for Manufactured Goods

PERIOD	U. K. Primary Imports to Manufactured Exports (a) (1913=100) (1)	Primary to Manufactured Commodities in world trade (b) (1938=100) (2)	U. K. Imports to Exports(c) (1938=100) (3)
1876-1880	116	147	163
1881-1885	119	145	167
1886-1890	111	137	157
1891-1895	105	133	147
1896-1900	101	135	142
1901-1905	100	132	138
1906-1910	100	133	140
1911-1913	101	137	140
1913	100	137	137
1914	101		
1915	109		
1916	114		
1917	120		
1918	100		
1919	83		
1920	78		
1921	61	94	93
1922	67	103	102
1923	74	114	107
1924	78	121	122
1925	81	123	125
1926	70	121	119
1927	81	125	122
1928	81	121	123
1929	80	118	122
1930	70	105	112
1931	61	93	102
1932	63	89	102
1933	63	89	98
1934		96	101
1935		98	103
1936		102	107
1937		108	107
1938		100	100

(See notes on page 51)

using 1876-80=100. He omits the war years from consideration.) A sharp drop occurred between 1913 and 1921, followed by substantial recovery during the mid-twenties, though the prewar level was never attained. Finally, there is the decline from the late twenties to 1933, again followed by partial but incomplete recovery.

It is my contention that each of these stages of decline in the terms of trade of primary countries requires and is susceptible to a distinct and specific explanation, and that when this is given, relatively little remains to be accounted for by any all-encompassing theory such as that advanced by Prebisch. And what remains for explanation can surely be fully or more than fully countered by Viner's argument with respect to the improved quality and composition of manufactured exports.

IV

With respect to the (apparent) downward movement in the terms of trade between 1876-80 and 1901-05, I suggest that this can be in large part if not wholly accounted for by the sharp decline in railway and shipping rates which occurred during this period. This decline was marked and fairly continuous over the thirty years in question; it was the accompaniment of a rapid expansion of the world's railway network, great technical improvement in shipping and increase in its supply, and the ancillary development of harbors, docks, warehouses, and canals.

The immense growth of railway mileage is shown in Table 2. Both relatively and absolutely, expansion of the railway network

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a Based on W. Schlote, British Overseas Trade from 1700 to the 1930's. (Oxford, 1952.) Appendix, Table 26. The two groups of which primary imports are composed, foodstuffs and livestock and raw materials, are given equal weight, in accordance with their relative total values in the period 1910-1913.

b Source: Relative Prices of Imports and Exports of Underdeveloped Countries (U.N. Publications 1949. II.B.3.) P. 22. (Based on League of Nations, *Industrialization and Foreign Trade*. Represents major trading countries and others.)

c Source: Same as b. (Current year weights. Based on W. Schlote, op. cit.)

was most rapid in the thirty years between 1870 and 1900, though its growth continued apace until 1930.

Table 2

Railway Mileage, 1870-1930

	1870	1900	1930
World	130,361	490,974	795,213
North America	56,106	223,454	319,100
Europe	65,192	176,179	261,545
Asia	5,086	37,470	82,487
South America	1,770	26,450	58,809
Africa	1,110	12,499	42,450
Australasia	1,097	14,922	30,822

Source: William Ashworth, *A Short History of the International Economy, 1850-1950.* (Longman, Green & Co., New York, 1952.) P. 63.

Steam shipping replaced the slower and less capacious sailing vessel in this interval, its share of total tonnage rising from 12.5 per cent in 1870 to 64 per cent in 1900, while total tonnage itself approximately doubled. The first refrigerated ship was introduced in 1876, the Suez Canal opened in 1869, and all through this period the major ports of the world were provided with more ample, more specialized, and more efficient facilities. By bringing hitherto remote regions into contact with the industrial centers of western Europe and the United States, the expansion of the railway network greatly extended the area of profitable cultivation of wheat, corn, and cotton, and stimulated the raising of livestock. "By the early 'nineties every farmer within a zone of 300 kilometers around the city of Buenos Aires had a railway station within ten to 15 kilometers of his farm. In the next decade extensions and feeders to the main lines were built . . . and where the railway reached, land and climate being suitable, cultivation of wheat began."[4]

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[4] Simon Hanson, *Argentine Meat and the British Market.* (Stanford University Press, 1938.) P. 119.

With the extension of railways went a reduction of freight rates which brought down the delivered cost of grains and other foodstuffs and raw materials at seaboard. The average rate per ton mile on five major U. S. railways fell from $1.44 to $.78 between 1876 and 1892, or by 46 per cent.[5] In the same period, the average carload rate on seven commodities from the west coast to New York declined by 63 per cent.[6]

Strongly reenforcing this trend was a parallel reduction in ocean shipping rates. Table 3 shows that U. K. inward freights from various ports declined by nearly two-thirds. (If the peak level of 212 in 1877 is taken, the decline by 1901-05 was more than two-thirds.)

Table 3
U. K. Inward Freights
(1900—100)

1876-80	184
1881-85	143
1886-90	106
1891-95	86
1896-1900	89
1901-05	67
1906-10	68

Source: A. K. Cairncross, *Home and Foreign Investment* 1870-1913. (Cambridge University Press, 1953.) P. 176.

The comments of Layton and Crowther vividly express the consequences of this remarkable slashing of transport costs.

> It will perhaps help to put the various elements affecting prices in their right perspective when it is pointed out that, acocrding to an investigation carried out by Powers in the State of Minnesota, the value of farm crops *on the farm* in inland states actually rose per unit in the twenty years preceding 1895, but owing to the fall in the cost of freight to the seaboard, the producers could place their produce on board ship at a lower price than before, while retaining

[5] *Wholesale Prices, Wages and Transportation,* Senate Report 1394; 52nd Congress, 2nd Session, 1893. Part I, Appendix K, Tables 123 and 130.

[6] *Ibid,* Tables 123 and 128. The commodities were dried fruit, hides, leather, nuts, beans, wine and hops.

> a larger sum as their own share. This, of course, damaged the position of the seaboard farmers relatively to their inland competitors. But though the fall in prices on the seaboard was considerable, it was even more severe in Europe, owing to the steady but rapid fall in the cost of carrying grain across the Atlantic. Thus the railway and shipbuilding mania, which had been so large a cause of the boom of 1870-74, became the leading factor in producing a subsequent decline of commodity prices.[7]

The significance of the sharp decline in both railway and ocean freight rates between 1876 and 1905 with respect to the terms of trade of primary producing countries derives from the fact that the price indices used for the exports of these countries are the c.i.f. prices of imports in British markets, whereas the indices used for their imports are the f.o.b. prices of British exports. The apparent relative decline in the prices of primary exports is therefore heavily weighted by the significant reduction in freight rates. It appears certain that a large part of the fall in primary product prices in European markets must be attributed to this cause. What proportion of the change in the index of primary product prices can thus be accounted for could only be determined by a careful, commodity by commodity investigation. Limits of time have prevented me from making such a study, but I have obtained a limited amount of evidence in support of the view presented here.[8]

Most of the readily available data relate only to the period between 1884 and 1903, and ocean freight rates alone are given. These are shown in Table 4. For wheat, however, the effects of changes in both railway and ocean shipping rates can be shown for the interval 1876-1891. As the following tabulated data indicate, the price in Liverpool of North American wheat fell $0.236, while shipping costs declined $0.1585. Thus 67 per-

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[7] Sir Walter T. Layton and Geoffrey Crowther, *An Introduction to the Study of Prices.* (Macmillan, London, 1935.) P. 90.

[8] It is my hope that research now under way will throw fuller light on the problem.

YEAR	Average price per bu. of U. S. wheat in Liverpool	Average freight charge per bu. N.Y. to Liverpool	Average freight charge per bu., Chicago to N.Y.
1876	$1.415	$0.1540	$0.143
1891	1.179	0.0625	0.076
Decline:	0.236	0.0915	0.067
		0.067	
Total drop in shipping costs:		0.1585	

Source: *Wholesale Prices, Wages and Transportation,* Senate Report 1394| (1893) Part I, Table 62, Appendix K, Tables 45 and 129.

cent of the drop in the price of wheat in this period alone is accounted for by the fall in shipping charges. Lowered costs of transport from the average farm to Chicago *could* account for most of the rest. Since warehousing, loading, and landing costs were also being reduced at this time, the probable real fall in price was negligible.

From Table 4, we can see that a drop in ocean freight rates explains all of the apparent decline in the price of wool, 88 percent in the case of mutton, 37.5 percent for corn, but only 12.8 percent for sugar. From Layton and Crowther we learn, however, that the widespread use by European countries of the bounty system on beet sugar, "superimposed on a rapidly increasing world's production, accounts for the fact that sugar fell 58 percent in England" between 1871-5 and 1894-8.[9] As for jute and rice, the fall in their prices in London was greatly exceeded by the decline in ocean shipping rates. It would therefore appear that the f.o.b. price in Calcutta and Rangoon rose instead of fell between 1884 and 1903.

From the foregoing evidence, it would seem reasonable to conclude that a large proportion, and perhaps all, of the decline in the British prices of primary products in the period between 1876 and 1905 can be attributed to the great decline in inward

[9] Op. cit., p. 89.

Table 4

Decline in prices and in ocean freight rates.

	Price			Freight rates			Percent freight decline is of fall in price
	1884	1903	Decline	1884	1903	Decline	
Corn (d. per bu.)	35.34	29.88	5.46	3.51	1.46	2.05	37.5
Sugar (d. per bu.)	310.2	166.8	143.4	42.5	24.0	18.5	12.8
Jute (s. per ton)	282.2	269.6	12.6	37.5	19.38	18.12	143.0
Wool (d. per lb.)	8.5	8.25	0.25	0.625	0.375	0.25	100.0
Rice (s. per ton)	153.33	145.0	8.33	38.92	22.08	16.83	202.0
	1885	1899		1885	1889		
Mutton* (d. per lb.)	4¾	2⅝	2⅛	3½	1⅝	1⅞	88.0

Note: Prices (except mutton) are average unit values; freight rates are inward ocean freight rates from New York (corn), Java (sugar), Calcutta (jute), New Zealand (wool), and Rangoon (rice). Source: Great Britain, Board of Trade, *Memoranda, Statistical Tables, and Charts on British and Foreign Trade and Industrial Conditions* (Cmd. 2337, 1904).

* Freight charges on mutton include handling and unloading charges in Australia and New Zealand and in London. Source: Simon Hanson, *Argentine Meat and the British Market.* (Stanford, 1938.) Pp. 88-89.

freight rates, whose collective trend is shown in Table 3. Since the price of British manufactured exports fell in this period by 15 percent, the terms of trade of primary countries, were f.o.b. prices used for their exports as well as for their imports, may well have moved in their favor.

This conclusion is supported by a recent study of cyclical price movements, which indicates that:

> . . . the price fall which usually took place in a bulky commodity in London in years of economic recession was frequently paralleled by an *increase* in the local price of the same commodity in the frontier area. . . . A few examples will illustrate the price movements in recession years of bulky frontier products which experienced a moderate price fall in the London or Liverpool market and benefited from a considerable decline in freight costs to the centres of consumption. In the recession from 1873 to 1879 wheat prices in the United Kingdom fell 19%, while they increased 9% in Illinois and 29% in Iowa. From 1883 to 1886 the price of Chilean nitrate fell 13% in London and increased 22% in Chilean ports. In the recession from 1890 to 1894 the price of soft-wood lumber fell 8% in London and increased 12% in Canada. From 1900 to 1904 wool prices in London fell 8% while prices in Argentina in terms of gold pesos increased 12%. From 1907 to 1908 the price of oats in London fell 9%, while the price in Australia increased 9% and in the United States 13%. As a result of such increases in local prices, it has frequently happened that the general export price indices in frontier countries have increased in recessions. In Argentina the export-price index in terms of gold increased in the recessions from 1866 to 1868, from 1889 to 1893, and from 1900 to 1904 and from 1907 to 1908.
>
> The explanation of the above price movements is that the savings in transport costs amounted to more than the decline in the London price.[10]

[10] Carl Major Wright, "Convertibility and Triangular Trade as Safeguards Against Economic Depression," *Economic Journal,* Vol. LXV (Sept. 1955), pp. 425-6.

V

We turn now to the course of prices and of the terms of trade between 1913 and 1929. Three distinct phases stand out: prices generally rose by some 200 percent during the war and immediately after, crashed after 1920 to a level about 50 percent above prewar in 1922, and then moved gradually downward until 1929.

During the 1913-1920 period, food and raw materials prices, contrary to their usual behavior in years of expansion, rose less than the prices of manufactured goods. With 1913=100, the index for foodstuffs and livestock imports reached 282 in 1920, that for raw materials 292, while British manufactured exports climbed to 370. The terms of trade of primary-producing countries consequently fell to 78. No less conspicuous than this exceptional movement was the marked disparity in behavior of individual prices. Out of 34 primary commodities,[11] 12 rose substantially more than the average (218 percent), while 16 rose substantially less. This disparity is explainable partly in terms of differences in sppply conditions (for some commodities, accumulation of stocks depressed prices in 1920), partly by the distribution of shipping, and partly by the varying incidence of wartime controls.

Our interest, however, is less in the situation during and immediately after the war than in the low point reached by the terms of trade of primary products in 1921-22, and in particular in the failure of the terms of trade to recover fully during the prosperous years of the 1920's. First we must attend briefly to relative price movements in the short-lived postwar depression. The terms of trade went still further against the primary-producing countries. In 1921 they reached a low of 61, recovering moderately in the following year to 67. Considering the situation in 1922, since the rapid fall of all three price indices continued until that year, we find the fall was greatest for raw materials prices, amounting to 54 percent from their 1920 level, while the

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[11] These commodities are those in the list given by Layton and Crowther, op. cit., p. 137. The index numbers cited are from Schlote, op. cit., Table 26, and were used to compute column (1) of Table 1.

decline in foodstuffs and in manufactures was closely similar, amounting to 44 and 42 percent respectively.

There is no simple explanation for these relative price movements, although two developments appear to have been of outstanding importance. First, British labor obtained a moderate increase in real wages during the war which it was able to retain in the succeeding depression, since the declines (1920-22) in wages and in the cost of living were almost identical. Higher wages were thus built into the cost structure of manufactured goods. Moreover, there can be no doubt that the administrative decisions of manufacturers, who chose to reduce output and employment instead of cutting prices, was also a factor. There is clearly some support for the Prebisch thesis in this period. It is surely worth pointing out, however, that the rise of unemployment in Great Britain—to over 2 million—meant that the shock of the depression was borne most heavily by this group. In the primary-producing countries, on the other hand, there was relatively little unemployment, the burden of the depression being borne more widely in the form of generally lower prices and money incomes.

Another element of great importance in accounting for the relative decline in primary prices immediately after World War I was the sharp response of producers to demand during the war, followed by excess capacity and the accumulation of stocks as demand shrank in the postwar period. This expansion and accumulation operated strongly to depress many primary prices—notably those of tin, nickel, copper, coffee, sugar, and wheat.

Rubber is a special case. Systematic plantation cultivation of this crop began only in the years just before the war (1905-10). Supplies increased rapidly (from 118,000 tons in 1913 to nearly 400,000 tons in 1919), and costs were substantially reduced. Rubber was unique in that its price actually fell during the 1914-20 inflation; its decline thereafter was also one of the sharpest.

The depression of 1921-22 was of short duration. Why did the terms of trade fail, during the ensuing period of expansion and general prosperity, to recover fully to their 1913 level? By

the late 1920's, the terms of trade had reached only 81, still some 19 percent below the prewar position. The price indices of foodstuffs and raw materials both declined, contrary to their usual movement in cyclical upswings, but the index of prices of manufactures declined even more. The percentage fall in each of these indices between 1922 and 1929 was 12, 9, and 25 percent respectively.

In spite of moderate improvement in the terms of trade of primary-producing countries, a number of exceptional factors operated to prevent an even greater improvement. These were: a continuation of overproduction in many lines, and in others, expansion of output relative to demand; an aggravation of overproduction by the "side effects" of a number of restriction schemes; and the impact of specially rapid technological advance in some lines of raw material production.

Among agricultural crops, the prices of sugar, silk, rubber, cotton, and wool all fell appreciably more than the average.[12] Although the output of sugar was substantially larger in 1922 than in prewar years, demand had recovered from the collapsed level of 1921, and the European beet sugar industry was contributing less than its earlier proportion to total output. Continued increases in production during the 1920's, especially in Cuba and Europe, led the Cuban government to attempt to restrict sales. The principal effect of this effort was to stimulate production elsewhere, with a steady weakening of the price. Rubber provides a similar case. The collapse in its price during the postwar depression led to the inauguration of the Stevenson restriction scheme in Malaya, the principal producing region. Until 1926 the price soared, but growth of production in non-control areas, especially the Dutch East Indies, finally forced abandonment of restriction. At the end of 1928, the price was only slightly above the low level of 1922.

Cotton prices also moved strongly downward in the 1920's, largely as a result of increasing output in the United States, where the ravages of the boll weevil were successful countered.

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[12] Layton and Crowther, op. cit., p. 185.

Wool production increased by about a third between 1925 and 1929, while wool prices declined in almost the same proportion.

Table 5

Production of Leading Crops
(in millions of metric tons)

	Wheat	Corn	Rice	Barley	Oats	Sugar	Coffee	Cotton
Av. 1909-13	82.2	102.9	77.5	28.7	52.1	14.6	0.77	4.53
1922	86.0	105.2	89.5	26.5	49.3	17.07	1.36	4.14
Av. 1924-28	97.1	107.2	79.7	31.0	52.3	25.4	1.61	5.70
1929	98.3	110.9	80.6	37.7	52.9	27.9	2.52	5.74
1930	105.9	99.6	85.5	36.1	52.1	28.6	1.64	5.63
1931	105.3	111.5	83.4	31.4	48.2	26.8	2.24	5.96
1932	104.3	121.0	82.0	35.7	53.2	24.4	1.83	5.14

Source: 1909-13, 1922, *International Yearbook of Agricultural Statistics,* 1925-26,, Tables 81 ff.; 1924-32, *The Agricultural Situation in* 1932-33, International Institute of Agriculture. (Rome, 1933). Pp. 59-93.

In minerals, the general picture at the end of the war was one of greatly expanded capacity. Recovery from the general price collapse of 1921-22 was fairly general, and was followed by rising demand as industrial output expanded. The response was so vigorous, however, that in many lines prices sagged throughout the later 'twenties. Thus a new flotation process in zinc production led to the accumulation of stocks which after 1924 depressed the price below the 1921 level. The situation was similar in lead: although demand rose substantially in the early 'twenties with the increased use of storage batteries in motor cars, new discoveries together with improved technology and increasing recoveries from scrap caused a large rise in production accompanied by a decline in price, which by 1929 was barely above the 1921 average.[13] Consumption of tin grew rapidly after the postwar recovery, raising this price by 1926 almost to the peak reached in 1920. Many new companies were floated in the next year or

[13] Data on minerals from William Y. Elliott and others, *International Control in the Non-ferrous Metals.* (New York, 1937).

more, raising capacity by more than a third by 1929, and driving the price down by a similar proportion. Even with a continued rise in consumption, it became clear that overproduction was upon the industry. Nickel, whose output had expanded nearly 50 percent during the war, responded to rising industrial demand in the United States with a further sizeable increase in production in the late 'twenties. Though the price rose to an average of 35c per lb. in 1929, it was still below the 1921 average of 37c. (It had averaged only 27c in 1924.) Copper, which entered the postwar period with excess capacity and accumulated stocks, also responded to growing demand with an increase in output of almost a third, largely from expansion in Chile and the Congo. It was chiefly these new, low-cost producers who were benefited. Although the price recovered from the 1922 low of £62.1 per long ton (annual average) to £75.4 in 1929, it was then only slightly above the 1913 figure of £68.4.

The experience of petroleum producers was similar to that of producers of the non-ferrous metals. Demand rose steadily, but production more than kept pace.

Two commodities were subjected to severe and growing pressure from synthetic substitutes: silk and nitrates. With the introduction of improved methods of production in Japan, output of raw silk rose by about a third between 1925 and 1929; in this interval rayon production more than doubled, its price was practically halved, and the price of silk fell by 26 percent. Synthetic production of nitrates in Germany and other European countries introduced a threat to the natural nitrate of Chile, whose share of world inorganic nitrate production fell from nearly 65 percent before World War I to just under a quarter in 1928-29.

Finally, brief mention may be made of the resumption, in more moderate degree, of the role of ocean freight rates. These declined from a level of 142 in 1922 to 113 in 1929, or by 20 percent.[14] Correction of the prices of primary imports into the U. K. for this factor would raise them, at least a few points, relative to the prices of manufactured exports.

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[14] The Economist shipping freight index (1898-1913—100), Vol. 130 (Feb. 26, 1938), p. 484.

VI

Between 1929 and 1933, the terms of trade of primary-producing countries underwent their third stage of decline, falling from 80 to 63. Although the prices of manufactures slumped some 24 percent during these years, the drop in prices of foodstuffs and of raw materials was considerably greater—39 and 42 percent respectively. As in the first of our three periods, ocean freight rates also fell, in this instance by 25 percent. Were this taken into account, f.o.b. primary prices would be somewhat higher, though of course by no means enough so to do more than moderate the fall in the terms of trade.

Here we have a major cyclical decline in prices, which Prebisch would explain in terms of resistance to cuts in wages and profits at the center, with contraction of output and of demand there exerting pressure on the periphery and causing prices and wages in that sector to fall more sharply. There can be no doubt that this explanation has considerable validity for this period. Output in the industrial countries fell markedly, and was reflected in unemployment amounting to 20 percent and upwards of the labor force (this being the principal form in which the burden of the depression is born in the industrial centers, as contrasted with a greater price fall in peripheral countries, as we have already noted). Real wages in the United Kingdom, which were higher in 1929 than in 1914, rose still further in the next four years.[15]

With demand for raw materials and foodstuffs compressed in the industrial centers via reduced output and employment (though sustained to a degree by the rise in real wages), one would expect a relative price fall for these products even were the response of primary output of the usual economically appropriate kind. That is, even had the decline in industrial demand been met by a reduction of output, however modest, the reduction of primary-products prices would have been greater than that of

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[15] With 1914—100, real wages in the U.K. were 118 in 1929. Although money wages fell during the depression, the decline in the cost of living was sufficiently greater so that real wages rose to 130. Results based on data in Layton and Crowther, op. cit., p. 195.

industrial products, which were subjected to comparatively severe output restrictions.

The relative decline of primary prices, to be expected on the grounds of the Prebisch analysis, was greatly aggravated, however, by the inverse response of the agricultural sector to the fall in demand and prices. Instead of diminishing, the output of many major crops increased. As Table 5 shows, wheat, corn, and rice crops were all larger in 1930, 1931, and 1932 than in 1929 (except corn in 1930); the decline in barley was very modest[16] while oats and cotton production was greater in one of the three depression years. Sugar output at first increased, but by 1932 was down more than 10 percent. Coffee production alone was notably lower in all three of the depression years.

Producers of non-ferrous metals reacted in the normal fashion to declining demand and price—they reduced output by 40 to 50 percent in most instances. Yet the prices of these products fell by about the same amount as food prices, owing in their case to previous overproduction and accumulation of stocks (especially noteworthy in the case of copper, zinc, and tin).

VII

Surveying the entire period 1876 to 1933, during which the terms of trade of primary for industrial products (as reflected in the indices used) declined some 46 percent, I urge that the evidence shows that this trend is in part spurious, and even where genuine, is not to be explained by any single, simple set of relations. The downward movement was by no means uniform, but consisted of three distinct phases. The first, from 1876 to about 1905, accounting for over one-third of the total decline, was largely spurious, explainable almost entirely if not completely by the huge drop in rail and ocean freight rates. The second phase, 1913 to 1929, includes the postwar collapse of prices and in particular the failure of primary prices to recover to their 1913 level. Here we found over-expansion of output in many lines of primary production during and after the war years reflecting partly exuberant response to rising demand, partly the effects of restrictionist schemes and partly the impact of techno-

[16] This was also true of wool and raw silk.

logical change. The third and final phase, from 1929 to 1933, conforms in part to the explanation given by Dr. Prebisch, though the picture was complicated and the worsening of the terms of trade seriously aggravated by the perverse response of suppliers in agriculture, and by previous overexpansion of the production of minerals.

The Brazilian Population at Mid-Century

*By Paul H. Price**

A great deal of discussion over a considerable period has been concerned with the potential for expansion of the Brazilian society. Viewing the tremendous land area of the Brazilian nation, one is led to contemplating the future role of this land in international affairs and to comparing it with the United States. Brazil is slightly larger in size than the continental United States and has about one-third as large a population. Although her population, size and land area place Brazil among the more important societies of the world, there is still a strong tendency for North Americans to think of this nation in the same terms as the other smaller Latin American republics. Oddly enough, the average Brazilian is also likely to consider his nation in this category because the bulk of the people have little conception of the vast potential of the nation of which they are citizens. It is the thesis of this paper that Brazil's greatest potential is in its people—a resource which is rapidly expanding. In the following paragraphs, an analysis is made of the significant characteristics of the Brazilian population in 1950.

Growth of the Population

Brazil had a population of 52,645,479 according to the most recent census taken in July of 1950. In the twenty Latin American republics there were approximately 155,500,000 people with about 110,000,000 of them living in the eleven republics located

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on the South American continent. Therefore, the Brazilians account for approximately one-half of the people of South America and about one-third of the people in the Latin American republics. In 1950, the population of Brazil was greater than that of the United Kingdom, of France, of the West German Republic, of Italy, of Poland, and of Turkey—countries which are of great importance in international affairs. Combined with this sizeable population is the fact of a very large national territory. Brazil is the third largest natioon in the world, being surpassed in area only by the Soviet Union and the Dominion of Canada.

A study of the growth of the Brazilian population indicates that it is characterized by a very rapid rate of increase. The more than 50 million Brazilians of 1950 were descendants of a population of about 7 million a century before. In 1900, the Brazilians numbered 17,984,000 and in 1925 they counted 30,322,000 persons. The Brazilian population, therefore, has increased 607.7 per cent in a century, 189.0 per cent in fifty years, 71.4 per cent in 25 years, and 26.4 per cent in the decade between 1940 and 1950. The average annual increase of the Brazilian population during the 1940 to 1950 decade amounted to 2.6 per cent. The rate of increase for the United States during this decade was only 1.4 per cent per year and this reflects the greatly increased birth rate occurring during and following the war years. If the present rate of increase is maintained, Brazil will have a population of about 66 million in 1960, of approximately 84 million in 1970, and of around 106 million in 1980.

Characteristics of the Population

Much can be learned about the general nature of a society by studying the characteristics of the population composing it. The essential features of the population of Brazil as revealed by the Census of 1950 are presented in the following discussion. In turn, consideration is given to residential status, racial composition, age composition, sex composition, marital status, educational status, and occupational status.

Residential Status

In 1950, the Census of Brazil listed 24.9 per cent of the population as urban, 11.2 per cent as suburban, and 63.9 per cent

TABLE I

Residential Composition of the Brazilian Population, by States and Territories, 1950.

AREA	RESIDENTIAL STATUS					
	URBAN		SUBURBAN		RURAL	
	Number (000)	%	Number (000)	%	Number (000)	%
North						
Guaporé*	7	20.0	6	17.4	23	62.6
Acre*	15	13.3	6	5.2	93	81.5
Amazonas	80	15.6	57	11.2	376	73.2
Rio Branco*	4	25.7		2.6	12	71.7
Pará	186	16.6	202	18.1	734	65.3
Amapá*	6	17.8	7	19.2	23	63.0
Northeast						
Maranhão	165	10.5	108	6.8	1,308	82.7
Piauí	83	8.0	86	8.3	875	83.7
Ceará	317	11.8	361	13.4	2.015	74.8
Rio Grande do Norte	171	17.7	82	8.5	714	73.8
Paraíba	314	18.3	142	8.3	1,256	73.4
Pernambuco	499	14.7	668	19.7	2,227	65.6
Alagoas	149	13.7	137	12.5	806	73.8
Fernando de Noronha*	1	—**	—	—	—	—
East						
Sergipe	137	21.4	67	10.5	439	68.1
Bahai	947	19.6	303	6.3	3,584	74.1
Minas Gerais	1,429	18.5	890	11.5	5,397	70.0
Serra dos Aimorés*	5	3.6	1	.8	152	95.6
Espírito Santo	136	15.8	58	6.8	666	77.4
Rio de Janeiro	931	40.5	160	7.0	1,205	52.5
Distrito Federal	1,779	74.8	523	22.0	74	3.2
South						
Sâo Paulo	3,647	39.9	1,156	12.7	4,330	47.4
Paraná	351	16.6	176	8.3	1,587	75.1
Santa Catarina	269	17.3	93	6.0	1,197	76.7
Rio Grande do Sul	1,015	24.4	406	9.8	2,742	65.8
West Central						
Mato Grosso	122	23.4	55	10.7	344	65.9
Goias	180	14.9	64	5.3	969	79.8
Brazil	12,957	24.9	5,825	11.2	33,161	63.9

Source: *Anuario Estatistico do Brasil, 1954, p.* DB. Definitions of residence are those used by the Brazilian Census.

* These areas are organized as Territories. Serra dos Aimorés is an area which is claimed by both the states of Minas Gerais and Espírito Santo.

** There are only 581 persons in Fernando de Noronha and they are all classified as urban.

as rural. According to this source, about two-thirds of the Brazilians live in the open country and follow the rural way of life. However, if the criteria by which rural people are delineated from urban people by the Brazilian Census are examined, it is revealed that the Brazilian people would be classified as even more rural if the definitions of the United States Census were applied. In Brazil, the population is divided into three residential groups called urban (*quadro urbano*), suburban (*quadro suburbano*), and rural (*quadro rural*). The census includes as urban all of the people living in the seats of *municípios* (counties) and of *distritos* (districts) regardless of their size. The suburban category includes persons living in an area surrounding the seats of *municípios* and *distritos* into which the urban population is expanding or is likely to expand.[1] An analysis of the size of the seats of *municípios* and *distritos* reveals that 3,198 out of the 5,369 places so classified had less than 2,000 population. These places included a population of 2,784,762 persons who would be classified as rural residents according to the definitions used by the United States Census. Subtracting this number from the total of the urban and suburban categories, one has a remainder of 15,998,129 persons which makes up about 30.0 per cent of the population. On this basis it is reasonable to assume that in terms of the residence classifications used in the United States, at least 70 to 75 per cent of the Brazilians would be considered as rural. Even according to the Brazilian classification, 13 out of the 20 states composing the Republic had more than 70 per cent of their populations listed as rural in 1950. (See Table I).

If it is kept in mind that the city of Rio de Janeiro had 2,303,063 population in 1950 and that São Paulo city had 2,017,025 people at that time, the extent of rurality is further accen-

[1] A 1938 decree of the National government, Number 311 of March 2, made each *prefeitura* responsible for preparing a map of its municipio for deposit with the Regional Directory of Geography which designated the *quadro urbano* and the *quadro suburbano* according to instructions supplied by the Conselho Nacional de Geografia. These maps are the bases upon which delineation between urban, suburban, and rural territory is made by the Brazilian Census. (See T. Lynn Smith, *Brazil: People and Institutions,* Baton Rouge: Louisiana State University Press, 1954, pp. 163-164).

tuated. Outside of these two great centers of population, there are only nine other cities of more than 100,000 persons. These are Recife (512,370), Salvador (389,422), Porto Alegre (375,049), Belo Horizonte (338,585), Belèm (225,218), Santos (198,405), Niterói (170,868), and Curitiba (138,178). Outside of these urban centers, for the most part, the rural way of life dominates the Brazilian scene.

Racial Composition

The Brazilian Census classifies the population into four groups: *brancos* (whites), *pardos* (browns), *pretos* (blacks), and *amarelos* (yellows). In 1950, 61.7 per cent of the Brazilians were listed as white, 26.5 per cent were classified as brown, 11.0 per cent were black, and 0.6 per cent were listed as yellows. The color of 0.2 per cent of the population was not declared. According to these figures, slightly less than two-thirds of the Brazilian people are classified as white. Slightly more than one-third of them are listed as of Negroid origin, either brown or black. The yellows, who are mainly Japanese situated in the state of Sâo Paulo, constitute only a relatively small proportion of the total Brazilian population. The 1940 Census showed larger proportions in both the white and black categories (63.4 per cent and 14.6 per cent, respectively) and a somewhat smaller proportion in the brown clasification (21.2 per cent). This decrease in the relative importance of whites and blacks and the corresponding increase in the proportion of brown persons suggests that miscegenation is continuing at a considerable rate. This process contributes to the so-called "bleaching process" through which the Brazilians foresee the disappearance of the Negro and other elements and the development of the Brazilian as a distinctive physical type.[2]

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[2] In the census categories used by the Brazilians, persons of native Indian origin probably are listed as white. The author recognizes also that a part of the decrease in the relative importance of whites and blacks which occurred between 1940 and 1950 results from the changes which were made in the manner by which information regarding the color of the population was collected by the Brazilian Census. In 1940, the census taker was asked to judge the color of the person who was being interviewed. This was changed in 1950, and the person who was being

Age Composition

The data from the 1950 Census clearly show that the Brazilian population is highly concentrated in the younger age groups. In fact, over one-half (52.3 per cent) of the Brazilian people were under 20 years of age at this time. Of this group, 29.6 per cent were under ten years of age and 22.7 per cent were between 10 and 19 years old. A comparison with the data from the 1940 Census shows that the proportion of Brazilians under 20 years of age has declined only slightly. In 1940, 53.3 per cent of the population were under the age of 20 years.

Only a small proportion of the Brazilian population is in the aged classification. In 1950, only 4.5 per cent of the population were 60 years of age and over. A very slight increase has occurred in the proportion aged in the Brazilian population since 1940. In that year, 4.2 per cent of the Brazilians were recorded as 60 years of age and over.

The concentration of the Brazilian population in the younger ages and the relative unimportance of aged persons indicate that the society is characterized by a high birth rate and a high death rate. This combination usually produces an age structure such as that which presently exists in Brazil.

Sex Composition

The Brazilian population is one in which females are slightly dominant numerically. The 1950 Census showed that among the resident population there were 25,885,001 males and 26,059,396 females, which gives a sex ratio of 99.3. The excess of women over men in absolute number in 1950 was 174,395. In 1940, the sex ratio was almost equally balanced, the figure being 99.9. In that year, the excess of females over males amounted to only 8,139 persons. Thus, between 1940 and 1950, women became slightly more important in the Brazilian population from both a numerical and relative standpoint.

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interviewed was questioned as to his color. Therefore, in 1940, color was determined by the census taker, whereas in 1950, this characteristic was based on the conception regarding his color of the person being interviewed.

TABLE II

Sex Ratios of the States and Territories of Brazil, 1950.

AREA	POPULATION Males (000)	Females (000)	Sex Ratio
North			
Guaporé*	20	16	130.6
Acre	62	52	120.1
Amazonas	263	250	105.3
Rio Branco*	9	8	113.8
Pará	563	560	100.5
Amapá'	19	17	111.0
Northeast			
Maranhão	790	793	99.6
Piauí	517	528	97.9
Ceará	1,321	1,373	96.2
Rio Grande do Norte	473	494	95.9
Paraíba	832	880	94.5
Pernambuco	1,644	1,750	93.9
Alagoas	526	566	93.0
Fernando de Noronha*			136.2
East			
Sergipe	306	337	90.9
Bahia	2,352	2,481	94.8
Minas Gerais	3,836	3,881	98.9
Serra dos Aimorés*	82	77	105.8
Espírito Santo	436	424	102.9
Rio de Janeiro	1,160	1,136	102.1
Distrito Federal	1,162	1,214	95.7
South			
São Paulo	4,648	4,485	103.6
Paraná	1,091	1,024	106.6
Santa Catarina	789	771	102.3
Rio Grande do Sul	2,081	2,083	99.9
West Central			
Mato Grosso	271	250	108.0
Goiás	618	596	103.6
Brazil	25,885	26,059	99.3

Source: *Anuario Estatistico do Brasil, 1954,* pp. 35-36.

* These areas are organized as Territories. Serra dos Aimorés is an area which is claimed by both the states of Minas Gerais and Espírito Santo.

The states of the South and West Central regions of Brazil have high sex ratios. (See Table II). In the West Central region, the state of Mato Grosso had a sex ratio of 108.0 and Goias had a ratio of 103.6. São Paulo (103.6), Paraná (106.0), and Santa Catarina (102.3) in the South had high sex ratios. Outside of these states, only Espírito Santo (102.9) and Rio de Janeiro (102.1) in the Eastern region and Amazonas (105.3) in the North had more males than females in their populations. Generally, the states of the Northeast had low sex ratios. For example, the state of Alagoas had a sex ratio of only 93.0 in 1950. High sex ratios, therefore, characterize the rapidly expanding Southern region, the West Central region, and the Amazonas in the North. Low sex ratios characterize the Northeastern states and Sergipe, Bahia, Minas Gerais, and the Federal District in the Eastern region.

Marital Status

Only slightly more than half of the Brazilian people of marriageable age are married from a legal standpoint. In fact, in 1950, only 54.1 per cent of the Brazilians 15 years of age and over were legally married. It should be noted, however, that this proportion indicates a greater tendency among Brazilians to conform to the legal provisions for marriage to a larger degree than the peoples of some of the other Latin American republics. In Brazil, as in most of Latin America, two separate ceremonies are required for a marriage to have the approval of both the Church and the State. However, the State alone has the right to perform legal ceremonies. Most of the rural people attach great importance to Church marriage and little significance to civil marriage which is often ignored. This latter fact tends to explain, in part, the relatively small proportion of the population which is legally married. It does not mean, however, that those families which are created without the benefit of legal sanction are less stable than those which have State approval.

Among the remainder of the population 15 years of age and over, 38.9 per cent were single, 6.6 per cent were widowed, and 0.1 per cent were separated and divorced. No information was available as to the marital status of 0.2 per cent. There is no

TABLE III

Illiteracy Among Persons Five Years of Age and Over, States and Territories, of Brazil, by Residence, 1950

AREA	PER CENT ILLITERATE			
	Total Population	Urban	Suburban	Rural
North				
Guaporé*	55.9	24.8	49.9	67.5
Acre*	70.7	36.3	51.9	77.7
Amazonas	63.1	28.4	42.7	74.0
Rio Branco*	60.9	25.4	51.9	74.3
Pará	57.7	24.6	39.5	71.6
Amapá*	61.4	33.0	55.1	71.4
Northeast				
Maranhão	78.3	35.5	56.6	85.7
Piauí	78.5	36.8	63.7	84.1
Ceará	73.3	42.9	57.8	81.1
Rio Grande do Norte	72.2	41.2	66.9	80.4
Paraíba	74.6	48.6	70.1	81.9
Pernambuco	72.5	43.6	52.6	85.3
Alagoas	79.7	47.2	63.5	88.9
Fernando de Noronha*	25.6	—	—	—
East				
Sergipe	70.6	39.6	59.6	82.5
Bahia	72.8	38.0	65.2	83.0
Minas Gerais	61.8	30.7	41.9	73.7
Serra dos Aimorés*	81.7	48.1	62.0	83.2
Espírito Santo	59.0	29.1	42.8	69.2
Rio de Janeiro	50.4	28.9	44.6	68.4
Distrito Federal	20.1	17.3	26.0	51.1
South				
São Paulo	40.7	20.3	34.2	60.8
Paraná	54.0	24.0	34.9	63.2
Santa Catarina	43.4	23.2	35.6	48.8
Rio Grande do Sul	41.4	21.4	35.8	50.2
West Central				
Mato Grosso	55.6	27.6	46.6	67.4
Goiás	71.8	38.3	61.7	78.9
Brazil	57.3	26.9	44.3	72.3

Source: *Anuario Estatistico do Brasil*, p. 42. Definitions of residence are those used by the Brazilian Census.

* These areas are organized as Territories. Serra dos Aimorés is an area which is claimed by both the states of Minas Gerais and Espírito Santo.

* There are only 581 persons in Fernando de Noronha and they are all classified as urban.

provision in Brazilian law for an absolute divorce. The nearest to this concept is called *desquite* which is a legal separation and does not carry with it the right to remarry. The issue of divorce is periodically debated by the Brazilian congress and commands strong support from both advocates and opponents. To this date, however, the latter have the upper hand.

Educational Status

For the most part, the Brazilians have a poor record of educational attainment. According to the 1950 Census, more than one-half of the Brazilian people 5 years of age and older are unable to read and write. Actually, 57.3 per cent of them were reported as being unable to read and write. Nevertheless, this figure reflects an improvement over 1940 at which time 61.8 per cent were unable to read and write.

An analysis of the ability of persons to read and write according to their place of residence shows a tremendous differential between rural and urban people. (See Table III). According to the 1950 Census, 73.1 per cent of the urban Brazilians possessed the ability to read and write and 26.9 per cent did not have this knowledge. Among rural people, only 27.7 per cent could read and write and 72.3 per cent did not possess this ability. Among the suburban population, 55.7 per cent could read and write and 44.3 per cent were classified as illiterate. These data show that whereas about one out of every four Brazilians living in urban places could not read and write, three out of every four rural dwellers were without these skills. For the most part, the Brazilian rural masses remain virtually without formal educational processes available to them.

Occupational Status

A study of the occupational status of the Brazilian population reveals the great rurality of the people. Among males 10 years of age and over in 1950, slightly more than half of them (50.6 per cent) were employed in agriculture, stock-raising, and forestry. The second most important occupational group among Brazilian males according to the 1950 Census was manufacturing and processing in which 10.2 per cent were engaged. Inter-

estingly enough, 8.7 per cent were listed as engaged in unpaid domestic services and school activities—the third most important occupational group. Other significant occupational groups were commerce which employed 4.8 per cent of the males, the rendition of services which included 4.1 per cent, and transportation and communication which employed 3.7 per cent. A large portion of the males 10 years of age and over were listed as being in an inactive status. This group made up 10.5 per cent.

The great bulk of the Brazilian women were recorded as engaged in unpaid domestic services and school activities which made up 80.6 per cent. The second most important occupational group among women was rendition of services which accounted for 5.0 per cent. The 1950 Census data show that 4.0 per cent of the women were employed in agriculture, stock-raising, and forestry. No other occupational category approached these in proportion of women engaged in them.

Fertility and Mortality

Some statistics are available on fertility of the Brazilian population for the period 1940 to 1950. These data are presented in the *Anuario Estatistico do Brasil, 1954* and are expressed in terms of the average annual number of births per 1,000 women between 15 and 49 years of age. They are differentiated by color and by residence. It is necessary to point out that these statistics undoubtedly are subject to error because of the inadequacies of the system of registration of births. However, the author feels that they are of interest and that they are of value in understanding conditions of fertility in Brazil.

During 1940-50, the average annual number of births per 1,000 women aged 15 to 49 was 177.3. A comparable figure for the 1930-1940 decade was 178.7, which indicates little or no tendency for fertility to decline. When analyzed according to color, the data show the highest fertility among *amarelos* (yellows) with an average annual number of births per 1,000 women aged 15 to 49 of 200.3. The *pardos* (browns) had the next highest rate (195.9), and the *brancos* (whites) recorded the third highest rate (171.0). The *pretos* (blacks) had the low-

est fertility of all of the racial groups, recording a figure of 167.5.

When fertility is analyzed according to residence, the data show that the rural people have the highest rates, the suburban dwellers the next highest, and the urban people the lowest fertility. The average annual number of births per 1,000 women between the ages 15 and 49 years for these residential groups were as follows: rural 201.9; suburban, 171.2; and urban, 120.9

The data relative to mortality of the Brazilian population are very inadequate. In fact, it is impossible to work out an accurate death rate from the presently available statistics. Nevertheless, there are materials upon which reasonably reliable indications of rates of mortality may be determined. Life tables have been presented for 1939-41 and 1949-51 in the *Anuario Estatistico do Brasil, 1954* for the Federal District in which the city of Rio de Janeiro is located and the *município* of São Paulo which contains the city of Sao Paulo. These two localities probably represent the most favorable conditions of mortality in the Brazilian nation and should not be looked upon as typical or average According to these data, the average life expectancy at birth of a male in the Federal District in 1939-41 was 39.7 years as compared to 49.8 years in 1949-51. The life expectancy at birth for women was 45.2 years in 1939-41 and 55.9 years in 1949-51. These figures indicate an increase in life expectancy in the Federal District during this period of approximately 10 years for both males and females. A similar, though lesser, increase took place in the life expectancy of the people of the *município* of São Paulo. In 1939, males in this locality had a life expectancy of 46.7 years as compared to 54.9 years in 1949-51. Similar figures for females are 51.6 and 60.2, respectively. This represents an increase in the life expectancy of approximately 8 years for people in this locality. For the nation as a whole, T. Lynn Smith estimates that the life expectancy is approximately 35 to 38 years. He also finds that the crude death rate of Brazil is about 20 per 1,000 population.[3]

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[3] T. Lynn Smith, *Brazil: People and Institutions,* (Baton Rouge: Louisiana State University Press, 1954, 198-199.

Conclusions

In conclusion, the Brazilian population in 1950 may be described as rapidly increasing and with possibilities of even more rapid growth. This latter observation stems from the fact that the available data indicate no tendency toward a decline in fertility while there is evidence that progress is being made in decreasing mortality. The population is characterized by great rurality, by a concentration of persons in the younger ages, by low sex ratios, and by very low educational attainment, especially on the part of the rural masses. The majority of the Brazilians are classified as whites, with mulattoes and blacks constituting the bulk of the remainder of the population. Only approximately half of the Brazilians of marriageable age live in a legally married status. The population is employed primarily in those activities associated with agriculture and rural life.

The peoples of Brazil undoubtedly will assume a larger role in international affairs in the future than at present. The rapidly increasing numbers of her population almost make this an inevitable occurrence. With intelligent utilization of the resources available to them, the Brazilians might well make their nation the "Land of Tomorrow" as it is so often called.

Economic Development and the Brazilian Northeast: What Is Economic Development?

*By Jimmye S. Hillman**

There exists no clearly defined theory of economic development, though practically all of the various theories in the science of economics are brought to bear in solving developmental problems. Nor is there a specific definition of the term *economic development.* Economic phenomena directly related to development problems date back, at least, to Adam Smith, the so-called founder of economics, if not back to Roman and Greek thinking. But the term economic development in its modern context is not old. Indeed, it has attracted world-wide attention only in recent years, particularly since World War II. And though this may sound a bit trite, the term has almost become a slogan in some circles.

Whether an area is regarded as economically developed or under-developed will depend on the specific criteria applied by the observer, and the position he occupies. They will vary as to whether the observer is an integral part of the society of the area or an outsider; whether his judgment and action may be prejudiced by his position; whether he applies criteria based on experience in the same area or other areas, or rests on ideologies and theories for these criteria; and, finally, whether his motives for thinking the way he does economically are predicated on economic phenomena.

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In other words, one's ideas about economic development may be conditioned by a bit of advice such as Schumpeter proferred about appraising capitalism, that is, "* * * it is not a question of the merits or demerits as we may individually see it. Our judgment about these is a matter of personal or groupwise preference that depends on interests and ideals largely determined by our personal or groupwise location in the social organism.[1]

Underdevelopment means poor economic performance as evidenced by a comparatively poor state of material well-being of the people, plus the potentiality of improvement through the application of known means.[2] It is seen that this definition means more than the presence of underdeveloped natural resources such as mines, rivers or forests. It is true that most underdeveloped areas have an unexploited natural resource base. However, this is, in many cases, not the principal means by which economic betterment can be attained. Moreover, there are cases where such natural resources are not even a necessary condition for development.

To designate an area as underdeveloped also implies that the economic end-product thereof could be improved by means which are available to the area. If such an area were to use its existing productive resources more effectively, and if, also, it were to augment the productive resources at its disposal, its people would get an appreciably better end-product of consumption and material well-being. This is particularly true of the Brazilian Northeast.

One may look on economic development as any change affecting fundamental factor supplies or produce demand.[3] This means that on the side of factor supplies each of the following represents a particular development; that is, the discovery of additional (natural) resources, the additional accumulation of capital, new and better techniques, growth in population, improvement in skills, and better economic organization.

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[1] Schumpeter, J. A. "Capitalism in the Postwar World," p. 113 of *Postwar Economic Problems,* Edited by Seymour Harris.

[2] Buchanan, N. S. and Ellis, H. S., *Approaches to Economic Development,* 20th Century Fund, 1955, p. 4.

Changes affecting basic product demands provide a parallel list of developments.

To facilitate matters, I should like to say that economic development is the process of solving the problems of underdeveloped areas. It is concerned with economic growth, pure and simple. For the purposes of this discussion, I should like to limit the measurement of underdevelopment to unambiguous economic indicators. In other words, I shall not be interested in evaluating cultural, artistic, religious or philosophical performance. An area may be highly developed in any or all of these spheres yet economically underdeveloped. This does not mean that the economic factor is the most important. It means only that the self-assigned problems to be discussed here involve primarily economic phenomena and economic indicators.

Characteristics of an Underdeveloped Area

Bearing in mind the limitations of statistical measurement and qualitative and non-economic questions raised, there exist certain indexes by which the degree of development of certain areas may be measured. These may relate to the quality and texture of life as indicated by an "end-product" or they may relate to economic performance as indicated by productivity. Some indexes belong to both categories. Depending on the point of view, they may be either end-result or they may help explain why the result is what it is. For example, a certain disease may be undesirable by its very nature; but it may seriously affect the energy and endurance of people and thus the productivity of the labor force.

Without going into detail let us make a list of some conditions which characterize an underdeveloped area as defined and outlined above, remembering that any area classified as being underdeveloped may be so with respect to any or all these conditions and relative to some standard represented by a "developed" area. Consider the following:

1. Low life expectancy.

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[3] Schultz, T. W., *The Economic Organization of Agriculture,* McGraw-Hill, 1953, p. 6-7.

2. High rate of mortality—crude death rate plus infant mortality.

3. Low state of general health.

4. Poor food, clothing, shelter and education.

5. Low per capita income because of:

a. Inferior labor productivity which may be due to a number of things including labor inefficiency.

b. Lack of basic "land" resources and/or poor utilization of these resources.

c. Inefficiency in capital formation due to a low savings rate, income inequalities, and the qualitative distortion of investment through inflation, etc.

d. Low rate of technological change and innovation due primarily to lack of invention and enterpreneurship.

If underdeveloped areas can be distinguished from developed areas by certain indexes; that is, monetary and non-monetary indicators which suggest economic performance and material well-being, then presumably an area could be said to be achieving development if these indexes show sustained improvement. In the language of economists, the term "real income per person" is used as a measure of the combined forces of such indicators. Raising real income per person implies more than just raising national output; it also means that this output must be distributed so that no one will be worse off and that everyone, in fact, will be better off than before the development occurred. Then raising the real income per person specifies development. Or viewed broadly, development is exploiting real income potentialities.

Economic Aspects of the Brazilian Northeast

Area and Population

For some purposes the Northeast is defined as that area which is covered by the Polígono das Sêcas (See Table I). For our purposes here, however, it will be defined to include all of the eight States of Piauí, Ceara, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe and Bahia.

TABLE I

POLIGONO DAS SECAS

Percentage of Various States in the Polígono

STATES	Area in Km²	% of the State in Poligono	Area of the State in Poligono	% of the area of Poligono
Piauí	251,683*	85.19	214,403	22.70
Ceará	147,895*	97.98	144,907	15.34
Rio Grande do Norte	53,069	91.29	48,446	5.13
Paraíba	56,556	96.24	54,428	5.76
Pernambuco	98,079	87.78	86,094	9.12
Alagoas	27,711	41.24	11,427	1.21
Sergipe	22,027	41.24	9,085	0.96
Bahia	562,092	56.90	319,849	33.86
Minas Gerais	591,092	9.61	55,922	5.92
Total	1,803,547**	52.37	944,561	100.00

Source: Escritório Técnico dos Estudos Econômicos do Nordeste.

* Exclusive of the area of 2.460 km², in dispute between the States of Piauí and Ceara.

** Inclusive of the area in dispute between the States of Piauí and Ceará.

This latter area excludes that small partion of Minas which lies within the Polígono. (The Anuário Estatístico do Brasil includes Maranhão but excludes Bahia and Sergipe in its tabulations on the Northeast).

According to our eight-state delineation, the Northeast comprises an area of 1,221,577 square kilometers and 14 per cent of the land area of Brazil. Of the 1,894 municípios in Brazil, 537 are within these States. Looking at it another way, the Northeast is larger than the combined area of France, Portugal and Spain, and, with the exception of Argentina, Mexico and Peru, is larger than any other Latin American country.

In the 1950 census the Northeast had 16,390,000 inhabitants, or 32 per cent of the Brazilian population. This represents a population density of 13 people per square kilometer, as against 6 for Brazil as a whole. This density varies from 100 per square kilometer in the 17 municípios around the city of Salvador, known as the Recôncavo Baiano, to 4 per square kilometer in the State of Piauí.

The area shows no tendency to slow down the population growth rate despite large emigration to other parts of the country. This rate of growth during the decade 1940 to 1950 was about 2.4 per cent per year. Estimates of the population since 1950 show that this rate is continuing at about the same pace. This compares to an average population growth rate in the United States of about 1.5 per cent since 1940.

Income and Employment

The underdeveloped nature of the Northeast is perhaps best demonstrated with data on incomes in the region. The 32 per cent of Brazil's people who lived there in 1953 received only 13.1 per cent of the national income. And, even with a sharp rise in the past several years, the average cash income per person was only 3,500 cruzeiros for the year in 1954. Moreover, even though the income figures in absolute cruzeiros has been increasing, the relative share of the Nordestino has been decreasing. (See Table II).

TABLE II

INCOME OF THE NORTHEAST

(million)

YEARS	Absolute Income	Index Numbers	% Increase Each Year	% of Nat. Income
1947	23,291.7	100	—	15.6
1948	25,859.7	111	11	15.5
1949	28,809.1	124	11	15.2
1950	33,986.6	146	17	15.3
1951	38,158.7	164	12	14.5
1952	42,657.5	183	12	14.0
1953	48,914.5	210	15	13.1
1954	62,624.6	269	28	13.5

Source: Escritório Técnico dos Estudos Econômicos do Nordeste

Looking at these data in another way, we may also cast some doubt on the increase in real income that has resulted from this increase in monetary income. It will be remembered that our test for development in an area was that the real income per capita must increase. We shall not bother here to calculate real

income per capita for the region; it is probably sufficient to look at the whole picture. The monetary income for the area increased from approximately 23 billion cruzeiros in 1947 to approximately 63 billion in 1954 or about 169 per cent. At the same time the general price level calculated by the Fundaçâo Getulio Vargas, which is a fairly reasonable reflection of increased living costs, rose approximately 190 per cent. These figures along with the last column of Table II show that the Northeast may have been falling behind the general rate of development in the rest of the country.

It has been demonstrated that per capita income in the Northeast is among the lowest of the underdeveloped areas of the world.[4] In 1952, in terms of income dollars per year, it compared to some other areas as follows:

Burma	43	Paraguay	130
India	57	Philippines	143
Nordeste	84	Ecuador	144
Ceylon	109	Brazil	189

As a final general demonstration of the need for economic development in the Northeast let us look at the activities in which people are employed. In 1950 the income and employment in the various sectors of activity for the region and for Brazil were as shown in Table III.

TABLE III
EMPLOYMENT AND INCOME IN THE NORTHEAST

	Employment %		Income %	
Field of Activity	Northeast	Brazil	Northeast	Brazil
Agriculture	73.5	61.0	40.8	32.7
Commerce (1)	4.8	6.3	19.6	15.5
Transportation (2)	2.4	4.1	5.2	8.0
Industry	8.0	13.1	12.8	20.0
Services (3)	8.0	9.9	14.7	12.8
Government	3.3	5.6	5.6	7.3
Rents	—	—	1.3	3.7

Source: Escritório Técnico dos Estudos Econômicos do Nordeste

(1) Commerce is combined with banking activities
(2) This item includes communications and storage
(3) This item includes the professions (Profissôes Liberais)

[4] Banco do Nordeste do Brasil S. A., *Relatório Exercício de 1955.*

Agriculture dominates the employment of the Northeast, with 74 per cent of the labor force being occupied in this sector. This is 12.5 per cent more than the figure for the country as a whole. As would be expected with this large employment, the total income generated in the agricultural sector is larger than that for any other. However, from a relative point of view, the productivity in agriculture is far below other sectors. This 74 per cent of the actively employed labor force receives only 41 per cent of the regional income. In contrast with this, the 5 per cent in commerce receives 20 per cent of the regional income.

Agriculture

A special word needs to be said about agriculture, because poverty in an underdeveloped area is almost always associated with low incomes derived from this sector. Low productivity in agriculture undeniably explains the low income level of the Northeast.

There is no one factor which fully explains this low-productivity. There is, the small operation, or what is called the high man-land ratio. Each agricultural laborer works, on the average, 5.03 hectares in the Northeast as compared to 15.6 in Minas Gerais, 20.3 in Rio Grande do Sul, 12.3 in Brazil, and about 54 in the United States.

It is the output per worker, however, rather than yield per hectare that reveals low productivity. A combination of factors account for this low output per worker. Among these are availability of capital and equipment, poor production techniques, conditions of soil, climate and terrain, and others.

The 1955 Report of the Bank of the Northeast lists several specific factors which account for low productivity in agriculture.

1. Availability of water—the problem of drouth.
2. Poor agricultural practices—planting out of season; failure to use good seed; excessive inter-cropping; absence of conservation practices; deficiency, or lack of use of insecticides and fertilizers; improper breeding practices, etc.
3. Lack of credit, transportation, and warehousing.
4. Poor education.

There stands out above all the factors mentioned previously the poor land use pattern in the Northeast, past and present.

This land use has been destructive of the resource base in agriculture. The decrease in productivity has been due to such practices as clearing slopes too steep for cultivation and to the shortening of the interval of recuperation in the system of land rotation. In the better lands of Paraíba, Rio Grande do Norte, and Ceara where cotton is important as a part of the rotation system, the periods of regeneration could be as short as 12 to 15 years if leguminous trees were planted at the end of the period of pasture.[5] When the owner receives a piece of land formerly cropped and now provided with seeded grass or palms, he permits his cattle to graze on the new pasture in such numbers that the feed is quickly used up. He makes no effort to control the encroachment of the second growth brush, and finally abandons it to the caatinga when his animals find no more feed in it. The period of regeneration in some of the more densely populated areas is as little as 7 to 10 years, which is insufficient to restore bacterial action and humus on land where these essential have been destroyed.

Preston James points out that one of the chief agricultural errors in the Northeast has been the application of European methods to a tropical area.[6] The clearing of the original forest on the hilly lands increases the run-off in times of heavy rain, so that the streams draining from these higher areas are now subject to disastrous floods of short duration separated by long periods when they carry no surface water at all. With the organic matter destroyed not only on the hills, but also on the broad plains, the water holding capacity of the soil has been lost. The water table has dropped, and has become salty. The droughts have become calamities: but they are man-made calamities, resulting from the destruction of the resource base by people who did not know what they were doing to their own economy.

Welfare Factors

Several welfare indexes may be used to point out the lack of and the need for economic development of the Northeast.

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[5] Duque, J. G. *Solo e Agua no Poligono das Sécas,* Departmento Nacional de Obras contra as Secas, Publ. No. 1954, Serie 1-A, Fortaleza, 1953.

[6] James, Preston "Pattern of Land Use in Northeast Brazil," *Annals of the Association of American Geographers.*

1. Literacy and Education.

The rate of illiteracy is very high in the Northeast: 74% for the region as compared with 57% for all Brazil, 41% for Sao Paulo, and 20% for the Federal District. Or, with 32% of the population of the country the Northeast has 40% of the illiterate but only 19% of the literate.

2. Life Expectancy and Mortality.

Life expectancy is very low in the northeast—among the lowest in the world. Much of the short life expectancy is due to the rate of infant mortality. It is not uncommon to have an infant mortality rate of above 400 per 1,000 births in some localities of the region.[8]

The crude death rate is also extremely high in the Northeast. Table IV compares four districts in that region with four districts in South Brazil. In general, this crude death rate has been decreasing for the Northeast, though the 1953 data are high. If the death rate trend continues downward and the crude birth rate continues at least stable, which it has, and further, if infant mortality is reduced, population may become a greater problem for the Northeast in the immediate future than now.

3. Medical Facilities and Personnel.

With the help of Mr. Jabine of the Statistical Division of SESP a table on hospital beds, physicians and nurses was compiled for the Northeast. See Table V. It should be noted that these data are for the census definition of the Northeast; i. e., including the State of Maranhâo but excluding Bahía and Sergipe. However, the relative statistical pattern in this case is not greatly changed and the point to be made is clear: that the Northeast is frightfully short of medical facilities and personnel.

4. Other Welfare Factors.

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[7] Revista Brasileira dos Municípos, No. 31, Ano VIII, Julho a Setembro 1955.

[8] Suplemento No. 3 do *Boletim de Bioestatística e Epidemiologia,* Ministério da Saúde, Serviço Especial de Saude Publica, 1954.

Time will not permit the exploration of other factors with regard to the general welfare of people in the Northeast. Suffice it to say that in virtually every category of a statistical sample taken in selected cities in August, 1952, the Northeast lagged behond. It should again be mentioned that items such as nutrition, health, housing, etc., are very important casual factors in economic development as well as being indicators that development is taking place.

TABLE IV

Crude Death Rates (Deaths per 1000 inhabitants)
Selected Brazilian Districts 1949-53

CAPITALS	AREA	1949	1950	1951	1952	1953
Fortaleza	Municipio	26,5	24,9	28,7	26,2	25,6
Natal	City	27,8	27,0	28,6	26,6	33,0
João Pessoa	City	29,3	25,2	29,6	28,5	31,8
Recife	Municipio	24,4	23,5	23,8	21,5	22,1
São Paulo	Municipio	10,4	10,0	10,3	9,3	9,4
Curitiba	Municipio	12,1	13,0	14,8	14,8	14,5
Florianopolis	Municipio	14,8	12,3	12,7	15,3	13,8
Porto Alegre	Municipio	14,6	14,2	14,5	13,9	13,1

Source: *Henrique Maia Penido*—Aspectos do Panorama Sanitario Brasileiro, *Revista do Servico Especial de Saude Publica,* Tomo VII, No. 2, 1955.

Obstacles to Development of the Northeast

Program Deficiencies and the Lack of Basic, Analytical Planning. The Northeast for many years has been recognized as a problem area and special programs have been formulated for the region. These programs have had only limited success and the region continues to progress slowly in economic development. The lack

TABLE V

Selected Data on Medical Personnel and Facilities
in the Northeast, Brazil and the United States, 1953

ITEM	Number		%	Population per unit		
	N. East*	Brazil	N. East	N. East	Brazil	U. States
Hospital beds	18,161	187,218	9.7	737	298	101
Physicians	2,424	23,497	10.3	5519	2377	724
Nurses	1,646	14,481	11.4	8133	3857	not comp.
Population	13,387,0	55,859,0	24.0	—	—	—

Source, Annuário Estatístico do Brasil

* Census definition of Northeast.

of success of the programs may be attributed to the following factors: [9]

1. The regional programs adopted have serious limitations.

Some major programs in the Northeast have the limitation of being related to the effects rather than the causes. They are of a defensive nature, such as "Against the Drought" rather than affirmative in the sense of promoting economic development. Programs for increasing regional income and employment, such as the expansion of mining and manufacturing activities, may through diversification of the regional economy be more effective than defensive programs in alleviating the effects of the drought. The implementation of all programs is severely limited by the inadequacy of advanced planning and of necessary factual information which comes from such planning. Also, the programs adopted and resources required to support these programs satisfactorily have not been related to the prospective total resources available for regional development programs. Consequently, financial support has generally been inadequate for the multitude of programs undertaken.

2. The absence of regional planning and the shortage of qualified personnel.

There is no established tradition of gathering and analyzing the facts about the regional economy so as to get a comprehensive understanding of the total economic situation and of the interrelationships in the various other sectors. There is little personnel available in the region—or Brazil—with adequate experience to undertake the necessary study and analysis.

3. The unscientific identification of regional problems.

In the absence of adequate information and sound planning, the so-called problems of the region have been identified through casual empiricism and emotional insights by non-scientific personnel. Some of the problems as identified are undoubtedly valid for development programs; others are not valid. But none of the problems has been presented or considered in relation to the total regional situation. Therefore, serious questions can be raised about the programs already adopted or proposed for the Northeast.

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[9] Robock, Stefan H., "*Projeto de Planejamento Global Para O Nordeste do Brasil,*" Escritorio Tecnico de Estudos Tecnicos do Nordeste, December, 1955.

4. There is almost complete lack of coordination among the regional programs.

The lack of coordination among programs in the region is widely recognized. Various efforts to coordinate them at a high level have not succeeded. This coordination for technical and working level efficiency among programs can only be achieved after a comprehensive picture of the regional economy is available and understood. Also, the various organizations must have adequate working personnel for this coordination to be realized.

The agencies through which the Federal Government of Brazil operates in the Northeast may be classified functionally in several categories such as: a) those which give direct investments: the construction of roads, ports, dams; the exploration of petroleum; the improvement of hydroelectric potential, etc.; b) those which give technical assistance and economic orientation: the assisting in increasing agricultural productivity; the assisting in bettering the production of sugar, alcohol and salt and the classification of products for export; c) those which give credit: for agricultural production; for industrial purposes such as acquiring equipment; for commercial purposes; and for large investments.

Following are listed the agencies which may be classified under the broad categories given above. No attempt will be made to describe their activities.

(1) Banco do Brasil.
(2) Banco Nacional de Desenvolvimento Econômico.
(3) Commisão do Vale do São Francisco.
(4) Conselho Nacional de Economia.
(5) Departamento Nacional de Obras Contra as Sêcas.
(6) Departamento Administrativo de Serviços Publicos.
(7) Fundação da Casa Popular.
(8) Fundação Getúlio Vargas.
(9) Instituto do Açucar e do Alcool.
(10) Instituto Nacional do Sal—Finalidade e Realizações
(11) Ministèrio da Agricultura.
(12) Ministèrio das Relacoes Exteriores.
(13) Ministério da Fazenda.
(14) Ministério da Viação e Obras Públicas.

5. Priorities must be established among possible regional programs.

Although large amounts of government funds are being spent in the Northeast, these amounts fall far short of satisfying all of

the "apparent" needs in education, health, transportation, energy, agriculture, mining, etc. With limited resources available, there must be a selection among possible programs in terms of priorities and time schedules. And the priorities must be soundly based on study, analysis and joint discussion at administrative and working levels.

Inflexible Investment Mentality of the People

For reasons that are rooted far back in the history of the Portuguese as well as four centuries of tradition in the Northeast, people who risk their capital in an economic venture seek quick returns, and when conditions do not permit such quick returns, the investment is usually withdrawn and placed elsewhere. This was well pointed out by the Mixed Commission as being a factor impeding the development of the whole country.[10]

The idea of long-term investment for the purpose of increasing long-term profits has played a small role in the Northeast and is emerging only slowly at present. The amount of new capital available for investment has been and is small for three reasons: a) the wealthy minority prefer to use their surplus funds for non-productive purposes, and over the years the resource base has provided large speculative profits often enough so that these wealthy people do not need to worry about long-term profits; b) a vast aggregate of capital in the hands of small operators has been lost in unsuccessful speculative adventures; and c) the great majority of the Nordestinos have little capital beyond such tools as the hoe and the machete. Under such circumstances as these there is little incentive to conserve the resource base, or to seek permanence and stability.

In countries where purchasing power is relatively widespread, cost reduction for agricultural or industrial products through additional capital investment is reflected in a reduction of the prices and in a widening of the markets. The idea of stability through a long-term investment policy faces this one great hurdle in the Northeast. In that region where there are only a few very wealthy and many who are very poor, a reduction of prices does not result in an increased market. The income gap between rich and poor is so wide that price reductions can hardly result

[10] Joint Brazil-United States Technical Commission, U.S. Department of State Publication No. 3487, Washington, D. C., 1949.

in a sizeable increase in the market. As a result a new capital investment leads to price increases, and the gap between poverty and riches is widened by inflation.[6]

Agriculture faces a peculiar investment problem in the form of improving the quality of its products. A sizeable portion of the agricultural production of the Northeast is destined for export. For example, the oil crops and cotton. The farmer is against investing in resources for the improvement of a product to be sold at prices he considers unsatisfactory. But from the standpoint of the general economy of the Northeast this attitude is disastrous because these products must compete on world markets. This problem does not confine itself to the Northeast. Consider what is happening in coffee with respect to Colombia.

Inflexible Institutional Patterns

At the outset we vowed to stay strictly within the context of economics as implied by measurable material indicators. I ask your permission only to indulge in the opinion that it is unfortunate that programs for economic development have many times placed stress on technological change and capital formation to the complete exclusion of the study of institutions. It is impossible to develop an economic program of growth in an area without taking into account the effect that institutions may have on that program in such areas as: 1) the direct calculation of costs and benefits; 2) relationships between production and distribution (output and income); 3) the order, predictability and probability of economic relationships; 4) knowledge of economic opportunities; and 5) motivations and values.[11] Hence, besides technological and investment surveys, as bases for programming large technical assistance and capital projects it would seem an almost inescapable alternative to make institutional surveys, and at least attempt to take into account the mutual impact of institutions and development programs one upon the other.

Approaches to Development of the Northeast

It may be impossible to utilize a large complement of technical assistance personnel in the Northeast until some of the basic problems of coordination and planning have been solved. For example, it may be entirely superfluous to employ a certain agri-

[11] Wolf, Charles Jr., "Institutions and Economic Development" *The American Economic Review,* Vol. XIV, No. 5, December 1955, pp. 867-883.

cultural technician and send him to an area where no program has been worked out and no problem specifically identified. A further complication may arise when two or more of the agencies listed previously claim jurisdiction over a problem area. As of now, the need for large numbers of highly trained technicians to attack vaguely defined problems in an uncoordinated fashion is limited in this region. As an overall program for assistance unfolds more and different types of technicians and assistance will be needed but in any event the nature and direction of such a program must be watched to see that it doesn't get bogged down in red tape and unlimited objectives.

A General Study and Appraisal of Regional Problems

Preliminary to technical assistance and government action on a broad scale, an overall picture of the economy of the Northeast should be provided through a general study of that economy. This study should attempt to discover the nature of income and employment for the region and provide an orientation to the personnel working on the study. It would include a resource survey in order to determine the capacity of the region for development. No general study of this nature is presently available. The Joint Brazil-US Economic Development Commission gave little attention to an overall appraisal of the problems of the Northeast.

The mere availability of a comprehensive evaluation of the economy of the Northeast might have great influence on popular opinion, political measures and existing programs. Also, the approach used in the study—good planning and systematic analysis—might become established as a working reality and implanted in the many agencies that are concerned with the region. Further, the experience gained by Brazilian personnel through working and associating with technical experts would be invaluable. Finally, new administrative methods for coordinating development work might be established during the operation of the study. This general study should also provide a basis for planning specific studies in the fields of agriculture, industry, transportation, finance, etc. Additional special studies of narrower scope may be undertaken as part of the resource survey. For example, the fats and oils work of Dr. Klare S. Markley, and a study of Mamona in Ceara by Dr. Diogo Caspar. But priority should be given the general study.

This general study and evaluation of the economy of the Northeast would best be accomplished by a technical commission at the national level. Such a commission would probably want assistance in planning and development work from the various United Nations Agencies or the International Cooperation Administration.

Special Studies

1. One of the most urgent needs of the Northeast is a special study evaluating activities of the various government agencies which are presently operating in the Northeast. If a program of development is to be undertaken in this region without serious overlapping of effort, such a study is necessary.

2. As mentioned previously, special studies on particular subjects of sectional interest may be made concomitant with the general study. These studies may be directed to the following fields or any of their subsidiaries: agriculture, fisheries, industry, minerals, commerce, transportation, energy, health, sanitation and nutrition, education and social services, public services—water and sewerage, finance and administration of federal, state and local governments, etc.

3. The 1955 Program of Activities of the Associacâo Nordestina de Credito e Assistência Rural (ANCAR) contained a list of 114 different problems under the general topic of "Agriculture and Rural Life" and broken down into the following categories: climaticos, agropecuarios, economico-financeiros, economia domestica, sociais, saude, educacionais e culturais, alimentacâo, habitacao rural, and associativismo e individuals. Any type of specific study in the field of agriculture need not go far to find a heavy schedule of work among these problems.

Work Already Underway

The Northeast was very much in the news several days ago when there was a meeting of Roman Catholic Bishops in Campina Grande, which was attended by the President of the Republic and representatives from the various governmental agencies. Upon his return the President signed certain decrees some of which affect the region as a whole and some of which affect particular situations in the states. Most of these actions are directed toward solving immediate problems and do not call for an over-all plan

of economic development of regional resources. However, much progress was made in specifying that the action agencies of the Federal Government work together on certain projects, and it is hoped that much better coordination of effort will result from this meeting.

A very promising action for economic development of the region is being taken by the Bank of the Northeast. This Bank is an agency which was created in 1952 to assist further in combating the drought and in the development of the area.

The unique feature of the Bank of the Northeast is the Escritório Tècnico de Estudos Econômicos do Nordeste (ETENE). The ETENE is an organ attached directly to the president of the Bank, the functions of which are to make economic analyses necessary for the formulation of Bank policy, to examine particular programs for loans and investments and to make studies which will assist in economic development of the region.

The ETENE in the beginning lacked the trained personnel necessary to accomplish the work expected of it. Because of this, the Bank requested the United Nations for assistance in initiating a personnel training program. Mr. Stephen Robock of the United Nations Technical Assistance Agency (UNTAA) came to Brazil in 1954 and started such a program. Mr. Diogo Gaspar, who is Chief of the ETENE, continues to direct the training of personnel to staff the organization. The program also seeks to train other personnel for Bank offices in Fortaleza and for its branch offices. The first training class concluded its studies in 1955 and initiated special analytical work in the ETENE which is not only necessary for the Bank to function properly, but which is also necessary before serious work can be undertaken on the development of the region.

There is other work being done toward solving some of the region's problems such as the life's work of Dr. J. G. Duque of DNOCS in Fortaleza. Time, however, will not permit elaboration of this work and the various activities of the many other agencies in the area.

Perhaps by now you are convinced that there are plenty of problems in the Northeast and that what is needed is more action and less talking.